MDP-315/515D
RMT-515D

SERVICE MANUAL

AEP Model
MDP-315/515D

Australian Model
MDP-515D

photo: MDP-515D

SPECIFICATIONS

Type CD/CDV/LD Player
Signal readout Optical (Laser beam reflection)
Signal format CCIR standard, PAL color system
EIA standard, NTSC color system (Note)

Playing time

(Note)

			PAL	NTSC
LD	CAV	30 cm (12 in) double-sided	72	60
		20 cm (8 in) double-sided	32	28
		20 cm (8 in) single-sided	–	14
	CLV	30 cm (12 in) double-sided	120	120
		20 cm (8 in) double-sided	40	40
		20 cm (8 in) single-sided	–	20
CDV		Audio portion	20	20
		Video portion	6	5
CD		12 cm (5 in) single-sided	74	74
		8 cm (3 in) single-sided	20	20

(minutes)

[Note] MDP-515D only

Digital audio specifications

Frequency response
4 Hz to 20 kHz (± 0.3 dB)
Signal-to-noise ratio
More than 105 dB (EIAJ*)
Dynamic range More than 95 dB (EIAJ*)
Total harmonic distortion
0.003% or less (EIAJ* at 1 kHz)
Channel separation
More than 95 dB (EIAJ*)
Wow and flutter Below measurement limit
(± 0.001% W.PEAK) (EIAJ*)

* Measurement by under condition of standards of Electric Industries Association of Japan (VTC-015)

Horizontal video resolution
PAL 440 lines
NTSC 425 lines

MICROFILM

Input/output

Video output 1.0 Vp-p, 75 ohms, unbalanced
RGB output 0.7 Vp-p
Audio output Analog: 200 mVrms (1 kHz, 40% modulation)
Digital: 200 mVrms (1 kHz, –20 dB)
Headphone output
28 mW (32 ohms), 8 ohms
Power requirements
Model for Continental Europe:
220 V AC, 50/60 Hz
Model for the United Kingdom:
240 V AC, 50/60 Hz

MDP-315:

Power consumption
33 watts
Weight Approx. 7.7 kg (16 lb 12 oz)
Dimensions Approx. 430 × 110 × 400 mm (w/h/d)
(17 × 4$^3/_8$ × 15$^3/_4$ inches)
Operating temperature
+5°C to +35°C
Ambient humidity 5% to 90%

MDP-515D:

Power consumption
40 watts
Weight Approx. 7.9 kg (16 lb 23 oz)
Dimensions Approx. 430 × 110 × 408 mm (w/h/d)
(17 × 4$^3/_8$ × 16$^1/_8$ inches)
Operating temperature
+5° C to +35° C
Ambient humidity 5% to 90%

—Continued on page 2—

- **SERVICE OF REMOTE COMMANDER RMT-515D**

Remote commander RMT-515D is available as a unit. But as individual parts the battery case lid of commander is only available.

CD VIDEO **CD/CDV/LD/PLAYER**

SONY®

MDP-315/515D
RMT-515D

SERVICE MANUAL

AEP Model
MDP-315/515D

Australian Model
MDP-515D

photo: MDP-515D

SPECIFICATIONS

Type	CD/CDV/LD Player
Signal readout	Optical (Laser beam reflection)
Signal format	CCIR standard, PAL color system EIA standard, NTSC color system (Note)

Playing time (Note)

			PAL	NTSC
LD	CAV	30 cm (12 in) double-sided	72	60
		20 cm (8 in) double-sided	32	28
		20 cm (8 in) single-sided	–	14
	CLV	30 cm (12 in) double-sided	120	120
		20 cm (8 in) double-sided	40	40
		20 cm (8 in) single-sided	–	20
CDV		Audio portion	20	20
		Video portion	6	5
CD		12 cm (5 in) single-sided	74	74
		8 cm (3 in) single-sided	20	20

(minutes)

[Note] MDP-515D only

Digital audio specifications

Frequency response	4 Hz to 20 kHz (± 0.3 dB)
Signal-to-noise ratio	More than 105 dB (EIAJ*)
Dynamic range	More than 95 dB (EIAJ*)
Total harmonic distortion	0.003% or less (EIAJ* at 1 kHz)
Channel separation	More than 95 dB (EIAJ*)
Wow and flutter	Below measurement limit (± 0.001% W.PEAK) (EIAJ*)

* Measurement by under condition of standards of Electric Industries Association of Japan (VTC-015)

Horizontal video resolution

PAL	440 lines
NTSC	425 lines

Input/output

Video output	1.0 Vp-p, 75 ohms, unbalanced
RGB output	0.7 Vp-p
Audio output	Analog: 200 mVrms (1 kHz, 40% modulation) Digital: 200 mVrms (1 kHz, -20 dB)
Headphone output	28 mW (32 ohms), 8 ohms
Power requirements	Model for Continental Europe: 220 V AC, 50/60 Hz Model for the United Kingdom: 240 V AC, 50/60 Hz

MDP-315:

Power consumption	33 watts
Weight	Approx. 7.7 kg (16 lb 12 oz)
Dimensions	Approx. 430 × 110 × 400 mm (w/h/d) ($17 \times 4\frac{3}{8} \times 15\frac{3}{4}$ inches)
Operating temperature	+5°C to +35°C
Ambient humidity	5% to 90%

MDP-515D:

Power consumption	40 watts
Weight	Approx. 7.9 kg (16 lb 23 oz)
Dimensions	Approx. 430 × 110 × 408 mm (w/h/d) ($17 \times 4\frac{3}{8} \times 16\frac{1}{8}$ inches)
Operating temperature	+5° C to +35° C
Ambient humidity	5% to 90%

—Continued on page 2—

- **SERVICE OF REMOTE COMMANDER RMT-515D**

Remote commander RMT-515D is available as a unit. But as individual parts the battery case lid of commander is only available.

CD VIDEO **CD/CDV/LD/PLAYER**

SONY®

MICROFILM

Remote Commander RMT-515D

Principle of operation	Infrared pulse
Power requirements	3 V DC, (2 IEC R6 size AA batteries)
Dimensions	Approx. 62 × 20 × 175 mm (w/h/d) ($2\frac{7}{16} \times \frac{3}{4} \times 7$ inches)
Weight	Approx. 130 g (including batteries) (4.5 oz)

Supplied accessories

Remote Commander RMT-515D (1)
IEC R6 (size AA) batteries (2)

Precautions

On safety

- Before operating, check that the operating voltage of the unit is identical to that of your local power supply.
- Should any solid object or liquid enter the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time.
  To disconnect a cord, pull it out by the plug. Never pull the cord itself.

On installation

- Avoid placing the player in a location subject to:
  - high humidity
  - high temperature
  - excessive dust
  - mechanical vibration
  - direct sunlight
- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.

On moisture condensation

Do not operate the unit right after having transported it from a cold location to a warm location or in a room where the temperature rises suddenly, because moisture may condense in the operating section of the unit. Wait for about an hour before turning the power on in the new location or keep the rise in room temperature gradual. If the unit is operated with moisture condensation, the unit and the disc may be damaged. Therefore remove the disc immediately when there is a possibility of moisture condensation and no picture is obtained. To evaporate the moisture rapidly, leave the player turned on without a disc loaded.

On operation

- When turning off the power, wait until "no disc" message appears after a disc has been removed and the tray has been closed. Especially, this must be practiced when the player is to be transported.
- Remove the disc from the tray after playing it, if the unit will not be used for any length of time. Do not transport the set with a disc in place.
- When the disc tray is in the open position, do not press down on it strongly, or place heavy objects on it.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which may damage the finish.

On repacking

Do not throw away the carton and the packing material. They make an ideal container to transport the unit in.

On disc tray

- If the disc tray does not close properly and slides out again, reinsert the disc.
- Be careful not to pinch your fingers between the tray and the unit.
- Always keep the tray closed when not using the unit to keep dust or dirt from entering the optical system of the unit.
- If the unit does not operate, press the ⏏ OPEN/CLOSE button and reinsert the disc.
- Insert only one disc at a time.
- Make sure the disc is placed properly in the tray. Incorrect positioning may result in permanent damage to the disc.

If you have any question or problem concerning your unit, please contact your nearest Sony dealer.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

1. Laser Diode Properties
   - Material: GaAlAs
   - Wavelength: 780 nm
   - Emission Duration: continuous
2. During service, do not take the Optical Pick-up Block apart, and do no adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

DANGER
Invisible laser radiations when open and interlock failed or defeated.
Avoid direct exposure to beam.

CLASS I LASER PRODUCT

ADVARSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UD AF FUNCTION UNDGÅ. UDSAETTELSE FOR STRÅLING.

CLASS 3B LASER

VAROITUS!
SUOJAKOTELOA EI SAA AVATA. LAITE SISÄLTÄÄ LASERDIODIN,
JOKA LÄHETTÄÄ (NÄKYMÄTÖNTÄ)
SILMILLE VAARALLISTA LASERSÄTEILYÄ.

LASER COMPONENT IN PRODUCT IS CAPABLE OF EMITTING RADIATION EXCEEDING THE LIMIT FOR CLASS I.

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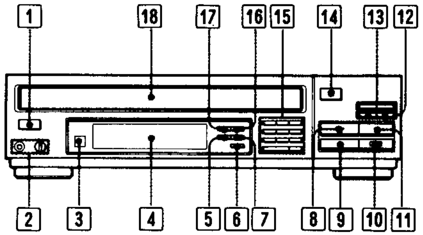
This section is extracted
instraction manual.

SECTION 1
GENERAL

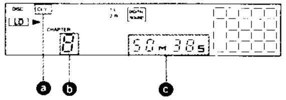
Location and Function of Parts and Controls (MDP-315 Model)

Refer to the page indicated in the black circle for details.

A-1



A-2



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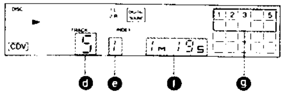

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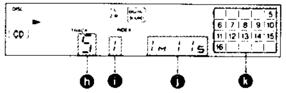


Front Panel

A-1

Buttons on the Remote Commander with the same indications as those of the main unit have the same function.

1 **POWER switch**
Press to turn on and press again to turn off the player.

2 **PHONES jack (stereo phone type) and LEVEL control**
When listening with headphones, connect the headphones with stereo phone plug here. Adjust the volume with the LEVEL control.

3 **Remote control sensor**
Point the supplied Remote Commander here.

4 **Display window**
When playing back a disc, the following indications appear on the display.

A-2

LD
- ⓐ Type of LD
- ⓑ Chapter number
- ⓒ Time (hr./min./sec.) or frame number

A-3

CDV
- ⓓ Track number
- ⓔ Index
- ⓕ Elapsed time (min./sec.) for track
- ⓖ AV calendar

A-4

CD
- ⓗ Track number
- ⓘ Index
- ⓙ Elapsed time (min./sec.) for track
- ⓚ AV calendar

5 **AV TIME button ●**
Press to change time display.

6 **⊂⊃ Repeat button ●**
Press to repeat the entire disc side, and for other repeat play.

7 **V.PART/A.PART (video/audio selector button) ●**
Press to locate the video portion of a CDV disc.

8 **► Play button**

9 **■ Stop button**

10 **STOP MODE MEMORY switch ●**
Use this switch to stop playback and resume at the same point later. This switch is effective for LD only.

11 **❚❚ Pause button**

12 **ACS/AMS ⏮/⏭ (Automatic Chapter Select/ Music Sensor) buttons ● ●**
Use these buttons for skipping chapter/track.

13 **DUAL SPEED ⏪/⏩ buttons ●**
Use these buttons for scanning.

14 **⏏ Disc tray OPEN/CLOSE button**
Press to open or close the disc tray.

15 **Number/file search (1-9/A-F) buttons**
These are used for entering program, chapter, track, frame, time numbers and File A-F.

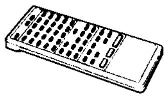
16 **INDEX button ●**
Use this button for custom index search.

17 **FILE button ●**
Use this button for setting a custom index mark.

18 **Disc tray**

Accessories

The following accessories are included in the carton.



RMT-515D Remote Commander

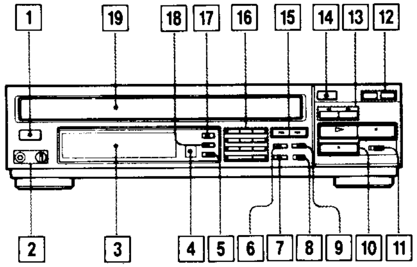
Two IEC R6 (size AA) batteries

Location and Function of Parts and Controls

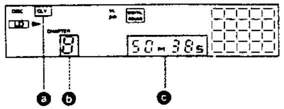
(MDP-515D Model)

Refer to the page indicated in the black circle for details.

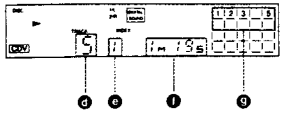
A-1



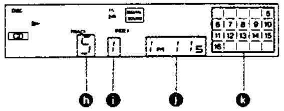
A-2



A-3



A-4



Front panel

A-1

Buttons on the Remote Commander with the same indications as those of the main unit have the same function.

1 **POWER switch**
Press to turn on and press again to turn off the player.

2 **PHONES jack (stereo phone type) and LEVEL control**
When listening with headphones, connect the headphones with stereo phone plug here. Adjust the volume with the LEVEL control.

3 **Display window**
When playing back a disc, the following indications appear on the display.

A-2

LD
ⓐ Type of LD
ⓑ Chapter number
ⓒ Time (hr./min./sec.) or frame number

A-3

CDV
ⓓ Track number
ⓔ Index
ⓕ Elapsed time (min./sec.) for track
ⓖ AV calendar

A-4

CD
ⓗ Track number
ⓘ Index
ⓙ Elapsed time (min./sec.) for track
ⓚ AV calendar

4 **Remote control sensor**
Point the supplied Remote Commander here.

5 **AV TIME button** ㉕
Press to change time display.

6 **Repeat button** ㉒
Press to repeat the entire disc side, or for other repeat playback.

7 **1/ALL button** ㉒ ㉖
Press to repeat the single track or chapter.

8 **RGB selector**
When the player is connected to the TV via the EUROCONNECTOR, set to ON to view an NTSC disc on a PAL TV. The TV can be set to receive the RGB signal.
When your TV is equipped with the RGB or composite signal selector, setting the TV to receive the RGB signal may be performed on the TV itself.
Set to OFF when your TV is capable of receiving both PAL and NTSC.

Notes

- When the TV is set to the RGB mode, the picture brightness may change.
  In this case, adjust the brightness on the TV.
- When this selector is set to ON, the picture may shift slightly to the left.

9 **V.PART/A.PART (video/audio selector button)** ⑭
Press to locate the video portion of a CDV disc.

10 **Basic operation buttons**
► Play button
■ Stop button
❚❚ Pause button

11 **STOP MODE MEMORY switch** ⑮
Use this switch to stop playback and resume at the same point later. This switch is effective for LD only.

12 **PAL/NTSC indicator**
This unit automatically distinguishes PAL or NTSC and turns on the respective indicator.
When the power is turned on, the PAL indicator lights up first, even if an NTSC disc has been inserted. After an NTSC disc rotates for a while, the NTSC indicator lights up and keeps on lighting until the disc is removed or the power is turned off.

13 **DUAL SPEED ⇤/⇥ buttons** ⑱ ㉔
Use these buttons for scanning.

14 **⏏ Disc tray OPEN/CLOSE button**
Press to open or close the disc tray.

15 **ACS/AMS ⏮/⏭ (Automatic Chapter Select/Music Sensor) buttons** ⑲ ㉔
Use these buttons for skipping chapter/track.

16 **Number/file search (A-F) buttons**
These are used for entering program, chapter, track, frame, time numbers and File A-F.

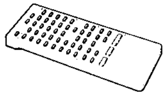
17 **FILE button** ㉚
Use this button for setting a custom index mark.

18 **INDEX button** ㉚
Use this button for custom index search.

19 **Disc tray**

Accessories

The following accessories are included in the carton.



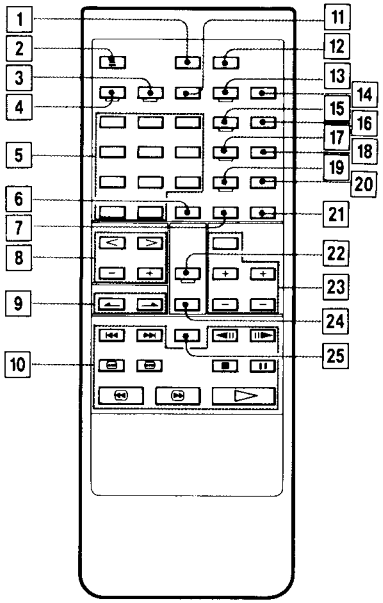
RMT-515D Remote Commander

IEC R6 (size AA) batteries (2)

Location and Function of Parts and Controls

Remote Commander

B-1



B-1

Buttons on the Remote Commander with the same indications as those of the main unit have the same function.

1 **DISPLAY button**
Press during playback to superimpose the screen messages (see page 13) on the monitor screen. Press again to remove the message.

2 **≜ Disc tray OPEN/CLOSE button**
Press to open or close the disc tray.

3 **FRAME/TIME search button ⑳ ㉑**

4 **PGM (program play) button ㉓**

5 **Number/file search (A-F) buttons**
These are used for entering program, chapter, track, frame, time numbers and File A-F.

6 **SEARCH/NEXT button ⑳ ㉑**

7 **BACK button ㉓ ㉗**

8 </> **MULTI SPEED buttons ⑯**
+/– SPEED SET buttons ⑯

9 —/— **Index buttons**
While playing back a CD, press — to advance the index or — to revert it.

10 **Basic operation buttons**
⏮/⏭ ACS/AMS (Automatic Chapter Select/Music Sensor) buttons
◀◀◀ (◀◀◀)/(▶▶▶) ▶▶▶ (High-speed scan) buttons
◀◀ (◀◀)/(▶▶) ▶▶ (Scan) buttons
◀ II/II ▶ STILL/STEP playback buttons
■ STOP button
II PAUSE button
▶ PLAY button

11 **CLEAR button**
Press to cancel a wrong numerical entry or to terminate the search or other functions currently in operation. (The functions affected are marked on the Remote Commander with yellow underlines.)

12 **DISC/TV button**
When the player is connected to the TV via the EUROCONNECTOR, press to monitor TV programmes. Press again to return to disc viewing.

13 **REPEAT button ㉒**
Press to repeat the entire disc side, or for other repeat playback.

14 **CX button ⑮**
Press to manually activate the CX noise reduction system.

15 **1/ALL button ㉒**
Press to repeat the single track or chapter.

16 **ANALOG audio button ⑮**
Use this button to switch between digital and analog sound on an LD of NTSC video signal system.

17 **SHUFFLE button**
Press to play back selections on a CD, CDV, and LD with TOC in a random order.

18 **AUDIO MONITOR button ⑮**
Press to switch the audio channels of a disc in the order of stereo, 1L, and 2R.

19 **REPEAT A ### B button ㉒**
Press to repeat the particular portion.

20 **A.(Automatic) PAUSE/A. (Automatic) SPACE button ㉘ ㉙**

21 **AV TIME button ㉕**
Press to change time display.

22 **FILE button ㉚**
Use this button for setting a custom index mark.

23 **TV operation buttons**
(Can be used to control Sony TV sets bearing the R mark.)
PROGR. (program) +/– buttons
◁ (volume) +/– buttons
⇥ button
Press to switch to a video recorder connected to the video/audio inputs of the TV set. (This function is available only with certain TV models.)

24 **CUSTOM INDEX button ㉚**
Use this button for custom index search.

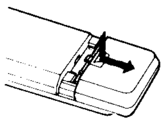
25 **V.PART/A.PART button ⑭**
Press to locate the video portion of a CDV disc.

Precautions on the Remote Commander

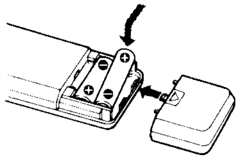
- Do not let strong sunlight or a strong artificial light source shine directly on the remote sensor, as it may interfere with the operation or damage the sensor.
- Connecting the Control S input jack on the rear of the unit to the Control S output jack on a TV set or other piece of equipment deactivates the sensor on the front and shifts operation to the sensor on the other equipment. In this case, point the Remote Commander at the latter equipment's sensor and not at the disc player.

Installing batteries

1 Open the lid.



2 Insert the two IEC R6 (size AA) batteries with correct polarity.



Battery life

Batteries should last for about six months under normal operating conditions. When the operating range of the Remote Commander becomes noticeably short, replace the batteries with new ones.

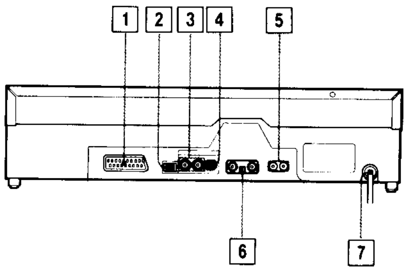
Note

When the Remote Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

Location and Function of Parts and Controls

Rear Panel

C-1



C-1

1 **EUROCONNECTOR** (21-pin)
Connect to the 21-pin connector of a VTR or a TV, or to the audio/video input of these units with a commercially available connecting cable.

2 **DIGITAL OUT connector**
This jack permits optical fiber connection to an amplifier or D/A converter unit with optical input. For connection, use the optional audio fiber cable POC-15. (OPTICAL)

3 **LINE OUT AUDIO L, R jacks** (phono jacks)
Connect to the audio input jacks of a TV set or the AUX input jacks of an amplifier. The output signal is the same-that is, digital or analog-as that recorded on the disc.

4 **LINE OUT VIDEO jack** (phono jack)
Connect to the video input jack of a TV set or VTR.

5 **CONTROL S IN/OUT jacks** (mini jacks)
Connect the IN jack to the CONTROL S OUT jack on a TV set and the OUT jack to the CONTROL S IN jack on a VTR.
- These connections permit the control of the player and the VTR using the remote sensor on the TV.
- Attaching the CONTROL S IN jack to the CONTROL S OUT jack on a TV set with the optional RK-G69 connecting cord allows you to operate the player by pointing the Remote Commander at the TV set instead of at the player.

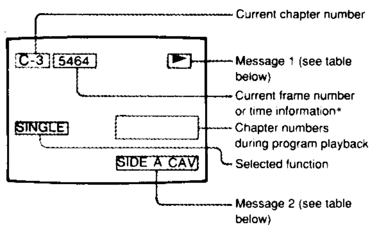
6 **VIDEO OUT jack** (phono jack)
AUDIO OUT (MONO) jack (phono jack)
RFU DC OUT jack (mini jack)
Connect to a TV with the only aerial input using the optional RFU-89EA RF modulator.

7 **AC power cord**

Screen Messages

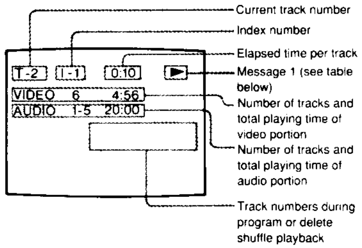
Information on the operating condition of the unit and chapter or track numbers can be superimposed on the TV or monitor screen. While no image is displayed, such as during search, information while playing back a PAL disc and a CD is shown on a blue background and information while playing back an NTSC disc is shown on a green background.

LD

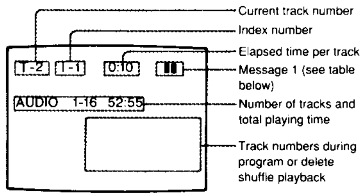

C-3
5464
▶
SINGLE
SIDE A CAV
Current chapter number
Message 1 (see table below)
Current frame number or time information*
Chapter numbers during program playback
Selected function
Message 2 (see table below)

* If seconds are not recorded on the disc, only "0:22:" is shown.

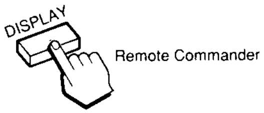
CDV


T-2
I-1
0:10
▶
VIDEO 6 4:56
AUDIO 1-5 20:00
Current track number
Index number
Elapsed time per track
Message 1 (see table below)
Number of tracks and total playing time of video portion
Number of tracks and total playing time of audio portion
Track numbers during program or delete shuffle playback

CD


T-2
1-1
0:10
❚❚
AUDIO 1-16 52:55
Current track number
Index number
Elapsed time per track
Message 1 (see table below)
Number of tracks and total playing time
Track numbers during program or delete shuffle playback

To turn on the screen message


DISPLAY
Remote Commander

Press the button again to turn the message off.

Message 1 (Examples)

Display	Explanation
OPEN	Disc tray open
CLOSE	Disc tray close
▶	Playback
■	Stop
❚❚	Pause
⏩/⏪	Forward/reverse speed scan
SEARCH	Search
▶ × 1/2	1/2 speed display in forward direction

Message 2 (Examples)

Display	Explanation
SIDE A CAV	Standard-play disc side A
SIDE B CAV	Standard-play disc side B
SIDE A CLV	Extended-play disc side A
SIDE B CLV	Extended-play disc side B
1L	Main soundtrack/left channel
2R	Second soundtrack/right channel
♪ DIGITAL	Digital sound
♪ ANALOG	Analog sound

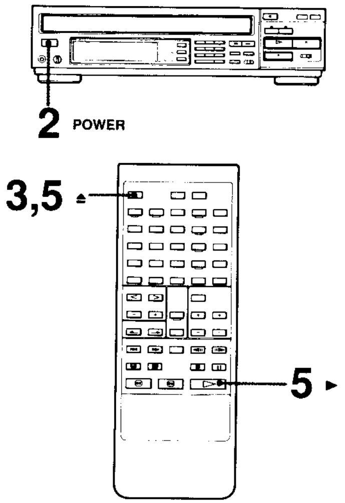
LD precaution

Some discs do not contain the side A or B identification code. In this case, the disc side indication may not be correct.

To Play a Disc

Starting Playback

To play an NTSC disc, connect the player and a TV via EUROCONNECTOR.



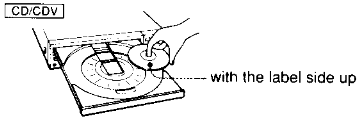
1 **Turn on the TV and stereo system.**
TV: Select the channel used for videodisc playback or the video input. (See page 11.)
Stereo system: Turn on the amplifier or the receiver and select the proper audio input.

2 **Press POWER to turn on the player.**

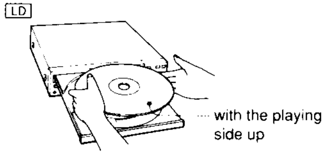
3 **Press ⏏ OPEN/CLOSE to open the disc tray.**

4 **Place the disc on the tray.**
Place the disc on the center of the tray. If the disc is not placed correctly, playback may not start.

CD/CDV


with the label side up

LD


with the playing side up

5 **Press ⏏ OPEN/CLOSE or ► (play) to start playback.**
CDV: Playback starts from the video portion.

Notes on disc tray

- Insert only one disc at a time.
- Make sure that the disc is placed properly in the tray. Incorrect positioning may result in permanent damage to the disc.

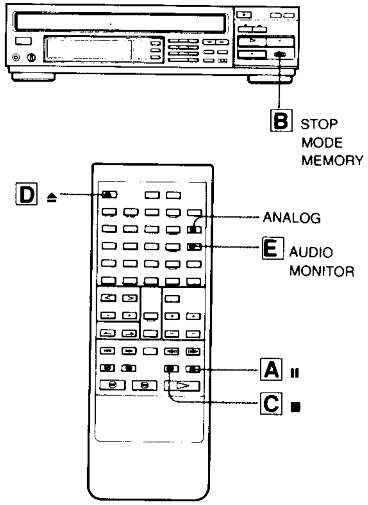
Using an optional timer
To automatically start playback with an optional timer, leave the POWER switch of the disc player in the depressed position. When the timer supplies power at the preset time, the unit turns on and playback starts.

To pause at the beginning of a disc
Press **II** on the player or the Remote Commander. The tray closes, and the player pauses at the beginning of the disc.

AV calendar
When playing a CD, CDV, or an LD containing TOC (Table of Contents) data, the AV calendar shows information on the total number of tracks or chapters. As tracks or chapters are played, the corresponding numbers on the display go out.

To switch between the video portion and the audio portion
Use the V.PART/A.PART button to locate the desired track.

Advanced Playback



To temporarily interrupt playback A

Press II (pause).
When playing CAV discs, the sound is cut off and a still picture is shown.
When playing other discs, the unit enters the pause condition. To resume play from the same point, press ►.

To stop playback and resume at the same point later - for LD only B

Set the STOP MODE MEMORY switch to MEMORY.

Memory stop precaution

- Pressing any button other than ► or ■ (the ⏏ OPEN/CLOSE button, in particular) deactivates the MEMORY STOP function.
- The MEMORY STOP function is only approximate. There may be a slight difference of a few frames between the stopping and starting positions when you use the MEMORY STOP function.
- The MEMORY STOP function does not operate during shuffle play, program play, single-chapter/track repeat, A↔B repeat, or single-chapter/track stop.
- When the power was turned off, the MEMORY STOP function does not operate and playback will start from the beginning of the disc.

To stop playback C

Press ■ (stop).
To restart playback from the beginning of the disc, press ►.

To stop playback and remove the disc D

Press ⏏ OPEN/CLOSE.
Remove the disc and press ⏏ OPEN/CLOSE to close the tray.

To play a stereo or a second audio program (SAP) LD E

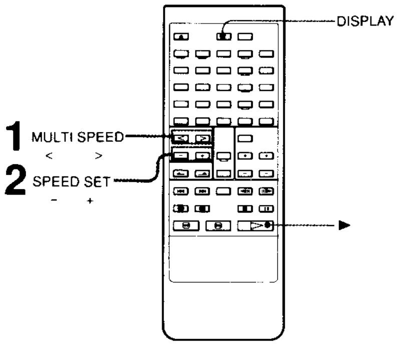
Press AUDIO MONITOR.

		After playback has started	➡ Press AUDIO MONITOR.	➡ Press AUDIO MONITOR.
Reproduced sound	Stereo disc	Stereo	➡ Left channel	➡ Right channel
	SAP disc	Audio signal (1) (left channel) Audio signal (2) (right channel)	➡ Audio signal (1)	➡ Audio signal (2)
Indicators lit		1/L 2/R	➡ 1/L	➡ 2/R

Discs with CX Label
Discs bearing the CX label are recorded with the CX noise reduction system, which gives lower noise levels and higher dynamic range. The CX indicator should automatically light up. Some CX discs do not include the code necessary to automatically activate the player's CX noise reduction system. If the CX indicator does not light, press the CX button on the Remote Commander to manually activate the system.

To switch between digital and analog sound on an LD (for NTSC discs only)
If the LD contains a digital stereo sound signal, the player automatically sends that to the output jacks. Pressing the ANALOG button on the Remote Commander switches to the analog audio signal and turns the DIGITAL SOUND indicator off. Press the ANALOG button a second time to return to digital sound output. With certain discs, there may be a difference in volume between the digital and the analog sound.

To Change Playback Speed and Direction
- Speed Play (CAV Standard-play)



To change the speed

1 Select the playback direction.
Press > for the forward direction.
Press < for the reverse direction.

2 Select the playback speed.
Press + to increase speed.
Press - to reduce speed.

	Speed indication	Speed (approx.)
Fast	×10	10 times normal speed
	×5	5 times normal speed
	×3	3 times normal speed
	×2	2 times normal speed
	×1	Normal speed
	×1/2	1/2 normal speed
	×1/4	1/4 normal speed
	×1/8	1/8 normal speed
	×1/16	1/16 normal speed
	×1/30	1/30 normal speed
Slow	×1/90	1/90 normal speed

Press ► to resume normal playback.

To change the direction

Press < to view the picture in reverse direction, or press > to view in forward direction.
To resume normal playback, press ►.

To display the speed and direction

Press DISPLAY.
The selected direction (< or >) and speed are shown.

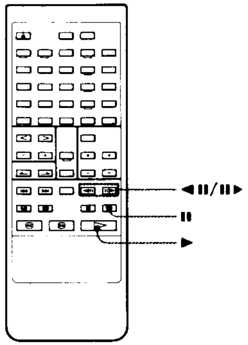
Sound during speed play
The sound can be heard only during ×1 (normal) speed play in the forward direction. In other speed and direction combinations, the sound is muted.

CLV discs
The above functions are available only with CAV discs. If they are attempted with CLV discs, a three-second warning message, SIDE A CLV or SIDE B CLV, will appear on the screen.

PAL discs
The image may be in black and white during ×10 (10 times) speed play in both directions.

Discs with automatic picture stop function
When a picture stop code is encountered during playback at the normal speed or slower than the normal speed, playback stops at that frame. Press ► to resume playback or a speed play button to continue the speed play.

To Play Frame by Frame
- Freeze-Frame, Step Playback (CAV Standard -play)



To view a still picture - freeze-frame

Press II (pause).
The picture stops at the current frame.
To resume normal playback, press ►.

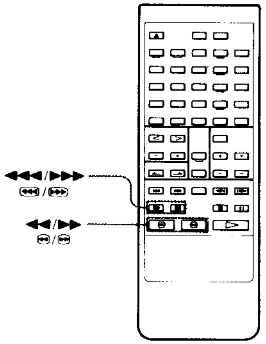
To view one frame at a time - step playback

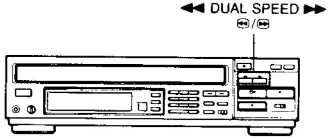
Press II (pause) once for freeze-frame.
To advance the picture by one frame, press II► (STEP in forward).
To go back by one frame, press ◄II (STEP in reverse).
Hold the button down for continuous frame by frame viewing.
To resume normal playback, press ►.

During freeze-frame or step playback operation
The sound is muted during still and step playback.

To Search for a Particular Scene

Scan Function





Normal scan

To scan in reverse, keep ◀◀ pressed.
To scan in forward, keep ▶▶ pressed.
To stop scanning, release the button.

High-speed scan

To scan in reverse at higher speed, keep ◀◀◀ pressed.
To scan in forward at higher speed, keep ▶▶▶ pressed.

Using the button on the main unit

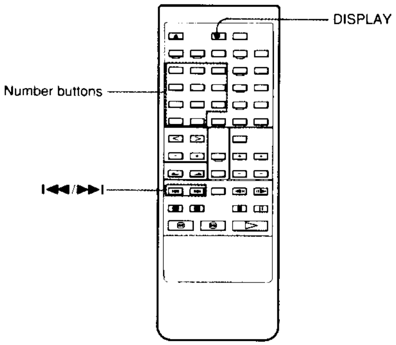
Keep ◀◀ or ▶▶ pressed lightly for normal scan in reverse or forward.
Keep ◀◀ or ▶▶ pressed firmly for high-speed scan in reverse or forward.

While scanning in either direction

- The sound is muted.
- The image with a CLV disc will be in black and white with some instability.
- Scanning speed varies according to the position on the CLV disc.
- The image with a CAV discs will be in black and white on some TV.
- A certain amount of noise is inevitable with all scanning operations. Especially, the image of CAV discs may be a little noisy.

Chapter/Track Search

Some LDs are divided into sections called chapters. The selections on CDs and CDVs are called tracks. Chapters and tracks are assigned numbers and this information is usually indicated on the disc jacket or label.



Direct chapter or track search

Enter the desired chapter or track number by pressing the number buttons.
If you have pressed a wrong number, simply press the correct one.
Playback automatically starts from the designated chapter or track.

Chapter or track skip search

To advance to the beginning of successive chapters/tracks, press ▶▶| repeatedly as needed. To return to the beginning of the current chapter/track, press |◀◀ once. Press it repeatedly - before the picture reappears - to go to the beginning of previous chapters/tracks.

To check the current chapter/track and frame/time numbers
The numbers are shown in the display window of the player. Press DISPLAY to display them on the screen.

To enter a number greater than 10
Use the +10 and "0" buttons.
Example: To enter 14 [+10] → [4]
To enter 20 [+10] → [+10] → [0]

If the +10 button was pressed by mistake
Press the +10 button repeatedly to revert to 0- or 1-.

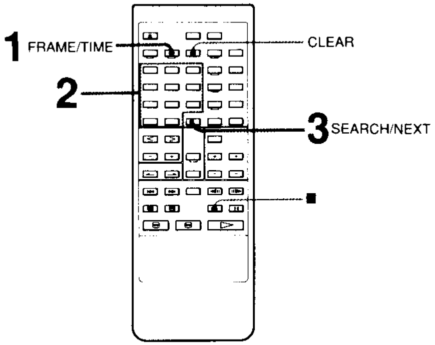
Notes

- The chapter search feature will not function if the disc does not include chapter numbers. In this case, the screen message will give only frame or time numbers.
- If a chapter number not contained on an LD is entered, playback stops. If the ALL repeat function is on (see page 22), playback will resume from the beginning of the disc.
- During CDV playback, the unit will not accept entry of track numbers not contained on the disc.

To Search for a Particular Scene

Frame Search (CAV Discs)

Each picture on a CAV (standard-play) disc is called a frame.



Example: Locate frame number 12340.

1 Press FRAME/TIME.

2 Press "1", "2", "3", "4", and "0" in sequence to enter the frame number.
If you enter a wrong frame number, press FRAME/TIME once more to return the display indication to zero, and then enter the correct number.

3 Press SEARCH/NEXT.
The desired frame is located, and playback automatically starts.

Search can be made in the freeze-frame, pause, and speed play modes as well as the normal playback mode. When the desired frame appears after the search, playback continues in the same mode.

To cancel frame search
Before the SEARCH/NEXT button is pressed: Press CLEAR.
After the SEARCH/NEXT button was pressed: Press ■.

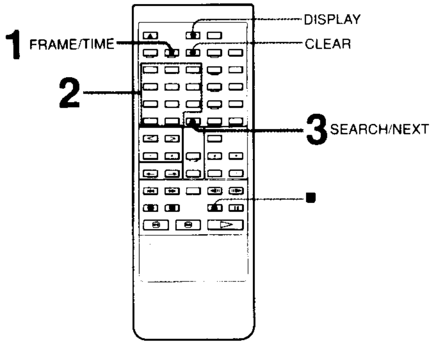
To check the current chapter and frame numbers
These numbers appear in the display window on the player. Press DISPLAY on the Remote Commander to display them on the screen.

Note

If a frame number not contained on a disc is entered, playback stops. If the ALL repeat function is on (see page 22), playback will resume from the beginning of the disc.

Time Search (CLV Discs)

CLV (extended-play) discs keep track of the position as elapsed time from the beginning of the disc.



Example: Locate the 12 min 05 sec point.

1 Press FRAME/TIME.

2 Press "1", "2", "0", "5" in sequence.
If you enter a wrong time number, press FRAME/TIME once more to return the display indication to zero, and then enter the correct number.

3 Press SEARCH/NEXT.
The picture of the desired time number is located, and playback automatically starts.

To cancel time search
Before the SEARCH/NEXT button is pressed: Press CLEAR.
After the SEARCH/NEXT button was pressed: Press ■.

To check the current chapter and time numbers
These numbers appear in the display window on the player.
Press DISPLAY on the Remote Commander to display them on the screen.

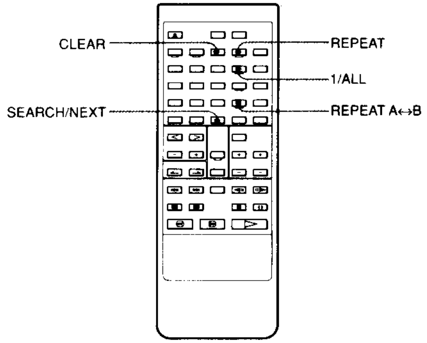
Notes

- If the disc does not include time data to the second, enter the time in minutes only.
- If the number selected is greater than the total time of the disc, playback stops. If the ALL repeat function is on (see page 22), playback will resume from the beginning of the disc.

To Play Particular Portions of a Disc

Repeat Playback

A single chapter or track, a designated portion of a disc, or the entire disc can repeatedly be played back.



To repeat the current chapter or track - SINGLE repeat

1 Press REPEAT.

2 Press 1/ALL.
The REPEAT and SINGLE indicators light up in the display window.
When the end of the current chapter or track is reached, playback of the chapter or track is automatically repeated.

To repeat the entire side of the disc - ALL repeat

Press REPEAT.
The REPEAT indicator lights up in the display window, and the entire side of the disc is repeatedly played back.

To repeat a designated portion of a disc - A↔B repeat

1 During playback, press REPEAT A↔B at the start point (point A) of the desired portion.
The REPEAT A↔B indicator flashes in the display window.

2 At the end point (point B) of the desired portion, press REPEAT A↔B.
REPEAT A↔B lights up in the display window.
The player returns to the point where REPEAT A↔B was first pressed, and repeat playback automatically starts.

To use custom repeat
To carry out repeat playback between two predefined points on the the disc, see page 31.

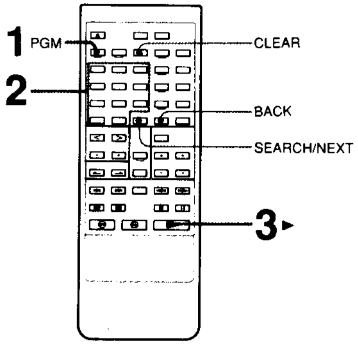
To check the current status
Check the indicators in the display window or use the DISPLAY button to verify the current setting on the screen.

To cancel A↔B repeat
Press CLEAR.

To cancel repeat functions other than A↔B repeat
Press REPEAT again to cause the REPEAT indicator in the display window to go out. (The same button that was used to activate repeat - on the player unit or on the Remote Commander - must be pressed to cancel it.)

Program Playback

Up to 20 chapters or tracks can be played back in a specified order.



If you make a mistake in chapter number entry
To start over, press CLEAR, and PGM again, and enter the correct numbers.
To change a number, press NEXT (for the next number) or BACK (for the previous number) until the incorrect number flashes on the screen, and then enter a new number.

To release or cancel program playback
Press CLEAR or 1/ALL. The player reverts to normal playback.

To repeat program playback
Use REPEAT to call up the REPEAT indicator.

To enter chapter numbers over 10
Use the +10 and "0" buttons.

If the +10 button was pressed by mistake
Press the +10 button repeatedly to revert to 0- or 1-.

To move to a preceding or following programmed track
Press the ⏮ or ⏭ button.

To check the program contents
Press PGM.
The program is displayed for about 3 seconds on the screen. The currently playing program number blinks.

Example: To play LD chapters 5, 4, 2, and 6 in that order.

1 Press PGM.
The PROGRAM indicator in the display window lights up.

2 Enter the chapter numbers by pressing "5", "4", "2", and "6" in sequence.

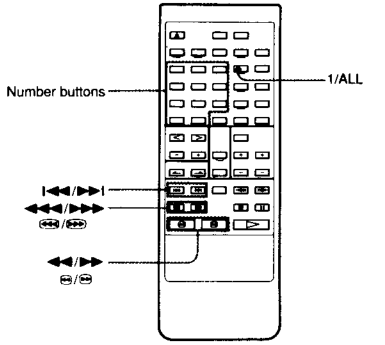
3 Press ▶ (play).
The first chapter is searched for, and playback starts from the beginning of chapter 5 and continues through chapter 4, 2, 6, and stops.

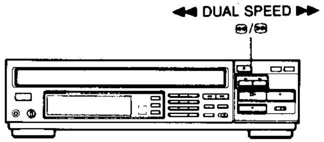
Notes

- When the ⏭ or ⏩ button is kept pressed during program playback and the end of the current chapter or track is reached, the next programmed chapter or track is played back. When the ⏮ or ⏪ button is kept pressed, the beginning of the current chapter or track is located, but the unit does not go back to previous tracks or chapters.
- When a program contains chapter or track numbers which are not on a disc, the program may not be carried out.
- Program contents are stored until the disc is removed or the power is turned off.

To Search for a Particular Track

The selections on CDs and CDVs are called tracks. Each track is assigned a track number which is indicated on the disc jacket or label.





To search by a track number

Enter the desired track number by pressing the number buttons.

To play a single track once
Use the 1/ALL button on the Remote Commander to call up the SINGLE indicator. Then select the track with the numerical buttons.
When the track has been played, the unit enters the stop mode. To release the setting, press 1/ALL again.

When a wrong number was entered
Press the button for the correct number.

To skip tracks

To advance to the beginning of successive tracks, press ▶▶I repeatedly as needed.
To return to the beginning of the current track, press I◀◀ once. Press repeatedly to go back to the beginning of previous tracks.

To search for a particular point

Keep ▶▶ (scan forward) or ◀◀ (scan backward) pressed during playback, and release it to resume normal playback.

To scan at higher speed
keep ▶▶▶ (forward) or ◀◀◀ (backward) pressed during playback, and release it to resume normal playback.

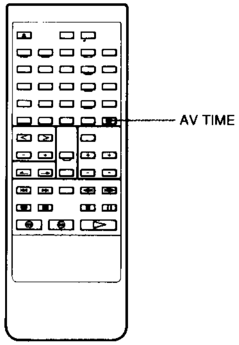
On the player
Keep ▶▶ (forward) or ◀◀ (backward) pressed lightly for normal scanning.
Keep them pressed firmly for high-speed scanning.

To enter track numbers over 10
Use the +10 and "0" buttons.

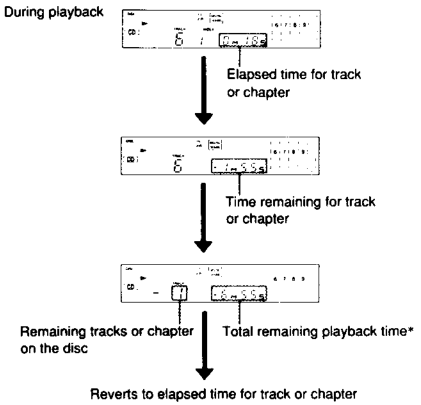
If the +10 button was pressed by mistake
Press the +10 button repeatedly to revert to 0- or 1-.

Sound during search
When scan is started from the playback mode, the sound can be heard at a low level. When scan was started from the pause mode, the sound is muted.

To Change Time Display



To change the time display in the display window, press AV TIME.
The display changes in the following sequence each time the button is pressed.


During playback
Elapsed time for track or chapter
Time remaining for track or chapter
Remaining tracks or chapter on the disc
Total remaining playback time*
Reverts to elapsed time for track or chapter

* With a CDV disc, these figures refer only to the portion (audio/video) currently in use.

Display on the screen
If the TV set or monitor connected to the player is on and the DISPLAY button is pressed, the track number, time, and other information recorded on the CD/CDV appears on the screen.

Note

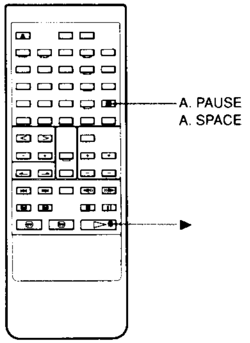
The remaining time will not be displayed for a track number higher than 20.

Note on LD discs

The time display function is available only with an LD containing TOC data.
First, the elapsed time or the number of frames is displayed. Pressing the AV TIME button then changes the time display as shown above.

Auto Pause

After a chapter or track is played, the player enters the pause mode.

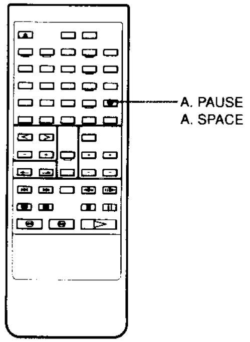


Press A. PAUSE/A. SPACE.

To start playback of next chapter or track
Press ▶ (play).

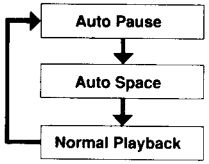
Auto Space

A blank interval of 3 seconds is inserted between playback of each chapter or track.

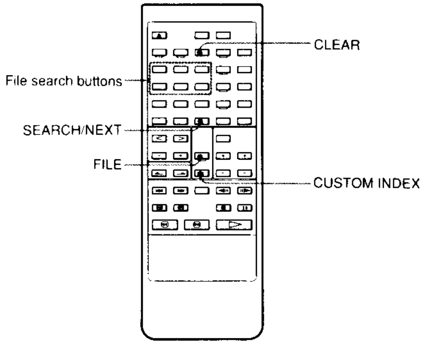


Press A. PAUSE/A. SPACE.

To return to normal playback
Each press of the A. PAUSE/A. SPACE button cycles the unit through the following conditions.



Custom Index



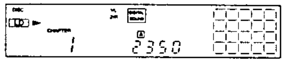
Custom Index

The Custom Index function lets you set six index marks max. at any point on the disc. Playback can then be started from an index point at the push of a button, and repeat playback between index points is also possible. This chapter explains how to set custom index marks on an LD, but the function can also be used for CDs or CDVs.

To set a custom index mark

Press FILE during playback.

Up to six locations anywhere on the disc can be marked.



Indicators A, B, C, etc. light up for each custom index mark.

Custom Index Search

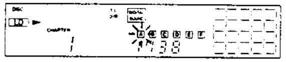
1 Press CUSTOM INDEX.
The AV calendar goes out and the number buttons 1-6 act as file search buttons A-F.

2 Press the file search button for the desired location.
Playback starts from the specified index point and continues until the end of the disc.

To jump to another index point
Press the corresponding file search button.

To return to normal playback
Press CUSTOM INDEX or CLEAR.

If you make a mistake
Press SEARCH/NEXT to cause the file indicator to flash.

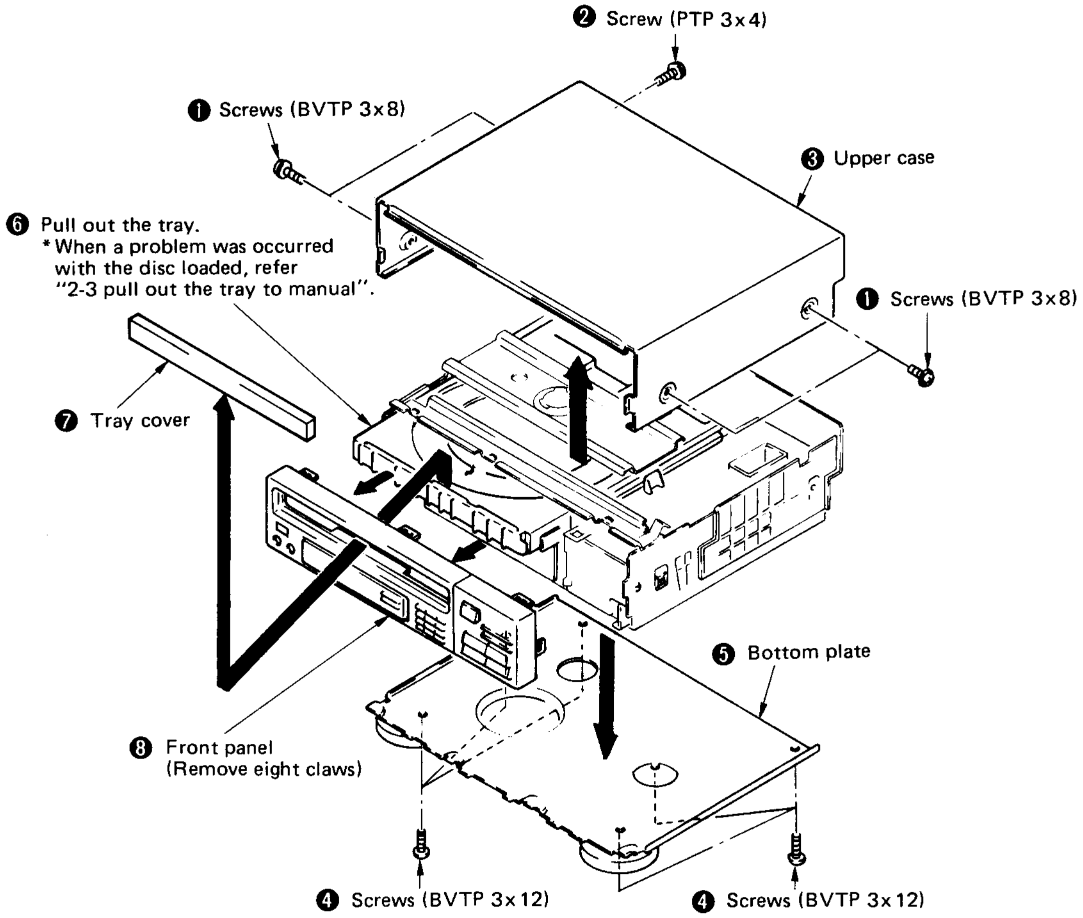


Press CLEAR and then FILE at the correct location.

SECTION 2
DISASSEMBLY

Note: The number within "•" means the sequential number for dismounting.

2-1. REMOVAL OF THE CABINET



❶ Screws (BVTP 3x8)

❷ Screw (PTP 3x4)

❸ Upper case

❶ Screws (BVTP 3x8)

❹ Screws (BVTP 3x12)

❹ Screws (BVTP 3x12)

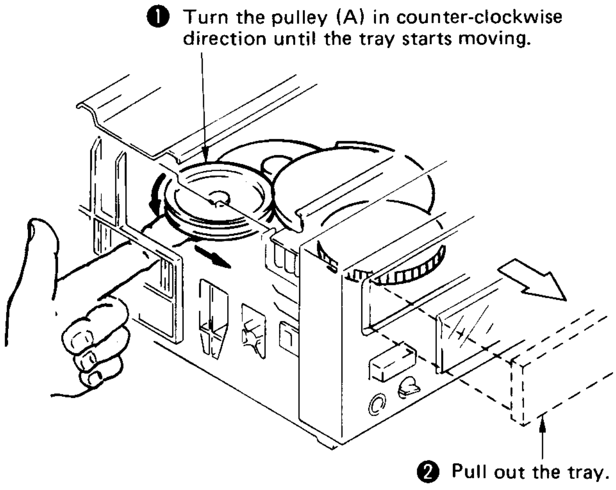
❺ Bottom plate

❻ Pull out the tray.
* When a problem was occurred
with the disc loaded, refer
"2-3 pull out the tray to manual".

❼ Tray cover

❽ Front panel
(Remove eight claws)

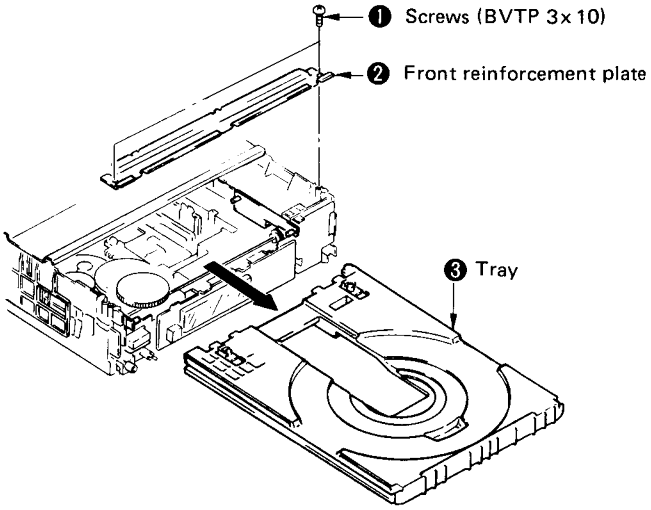
2-2. PULL OUT THE TRAY TO MANUAL



❶ Turn the pulley (A) in counter-clockwise direction until the tray starts moving.

❷ Pull out the tray.

2-3. REMOVAL OF TRAY



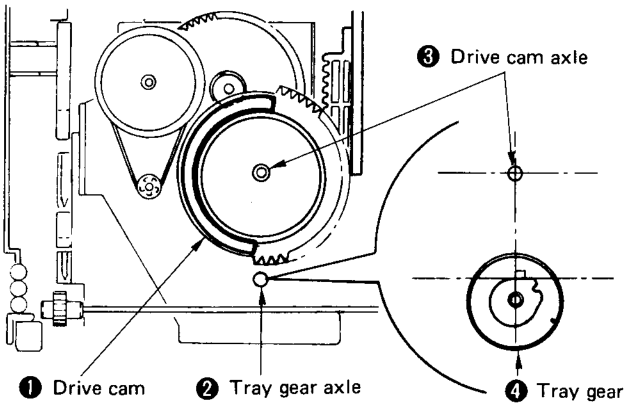
❶ Screws (BVTP 3x10)

❷ Front reinforcement plate

❸ Tray

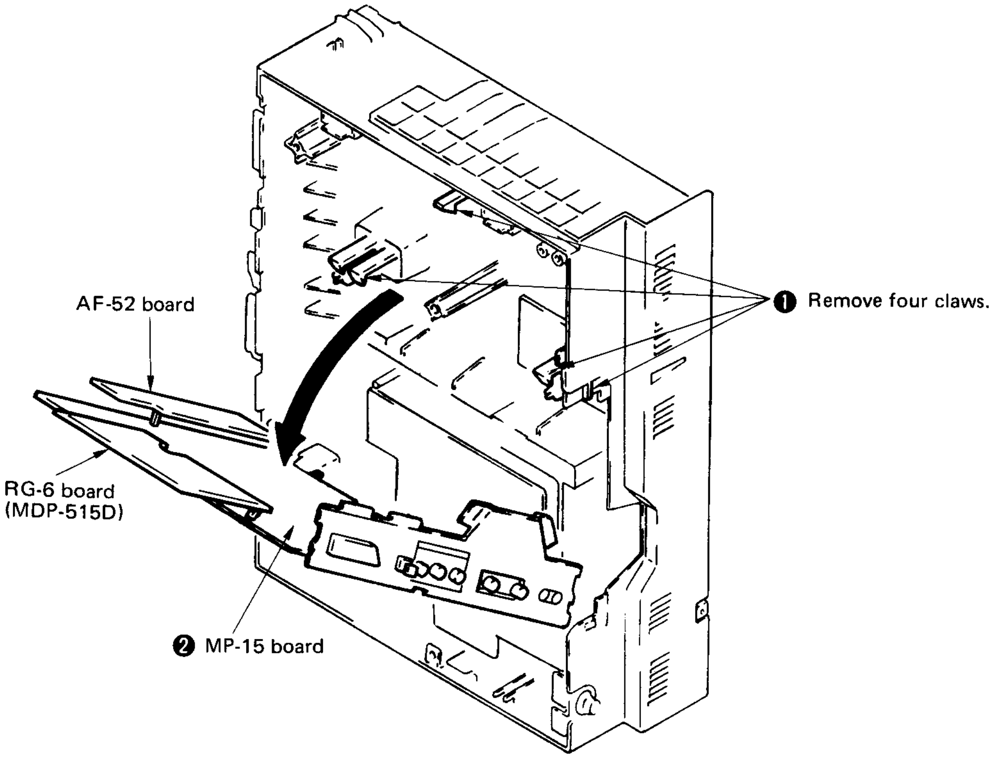
2-4. ALIGNMENT OF LOADING GEAR PHASE

1. Install the drive cam as shown in the illustration. At this time, make sure that the last tooth of gear is aligned with the line from the center of the tray gear axle and the drive gear axle.
2. Install the tray gear as shown in the illustration. At this time, make sure the flat surface of the cam is at a right angle with the drive cam.



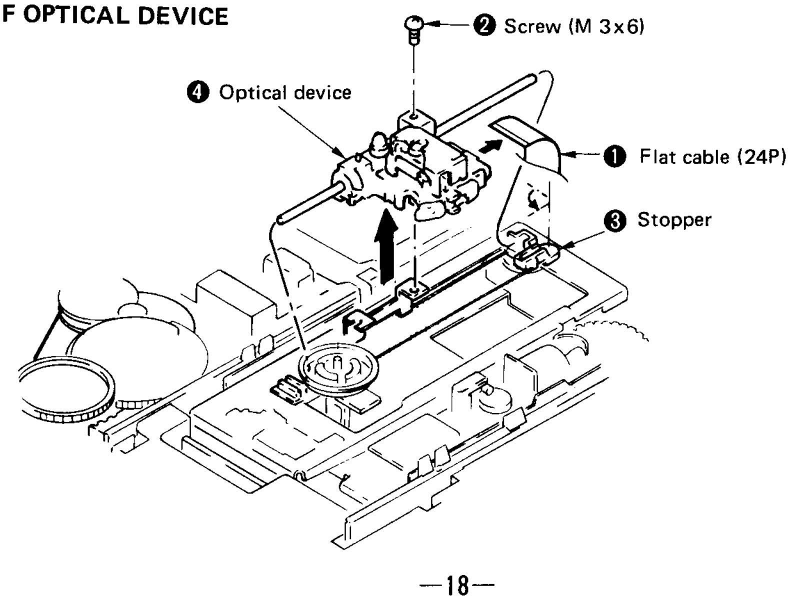
❸ Drive cam axle
❶ Drive cam
❷ Tray gear axle
❹ Tray gear

2-5. OPENING OF MP-15 BOARD



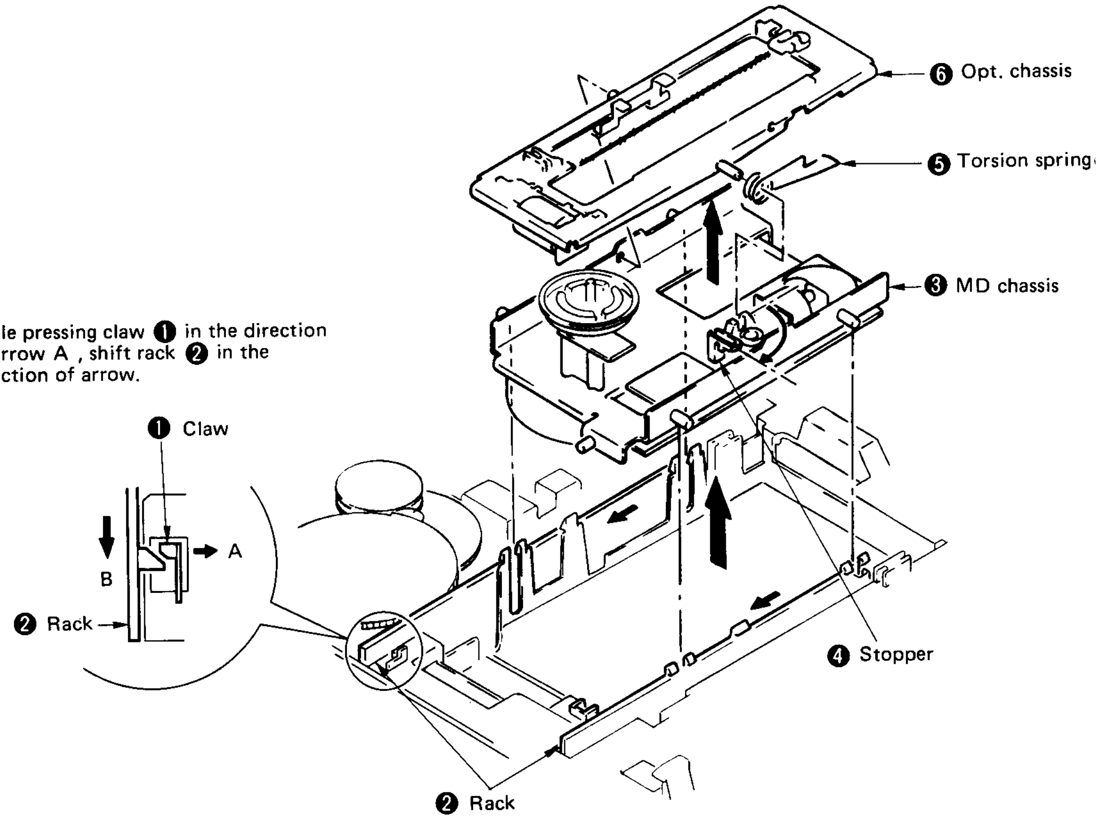
AF-52 board
❶ Remove four claws.
RG-6 board
(MDP-515D)
❷ MP-15 board

2-6. REMOVAL OF OPTICAL DEVICE



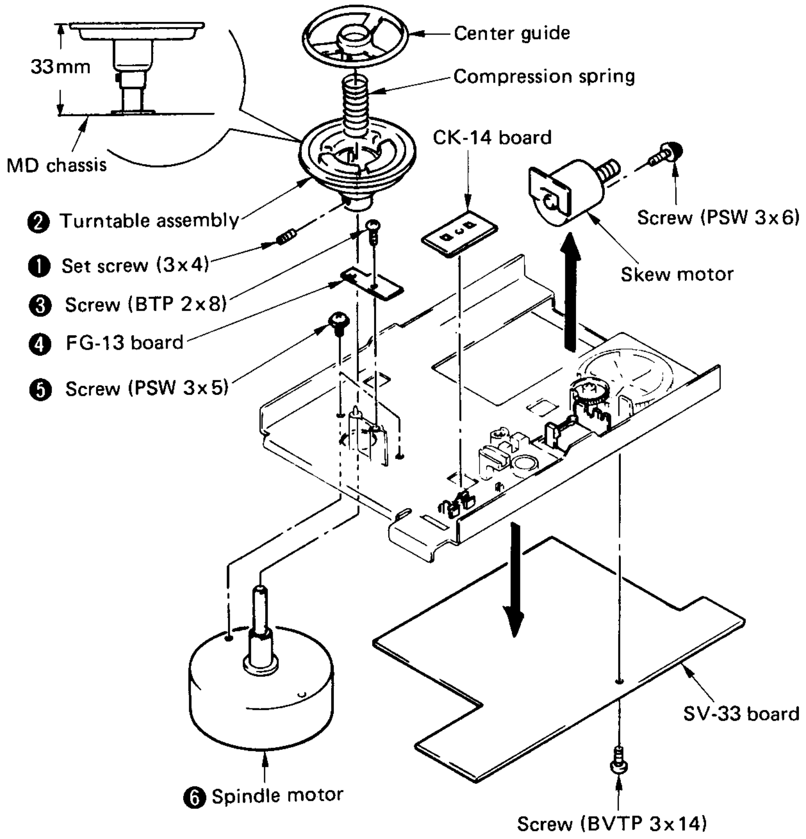
❷ Screw (M 3x6)
❹ Optical device
❶ Flat cable (24P)
❸ Stopper

2-7. REMOVAL OF MD CHASSIS AND OPT. CHASSIS


⑥ Opt. chassis
⑤ Torsion spring
③ MD chassis
① Claw
A
B
② Rack
④ Stopper
② Rack

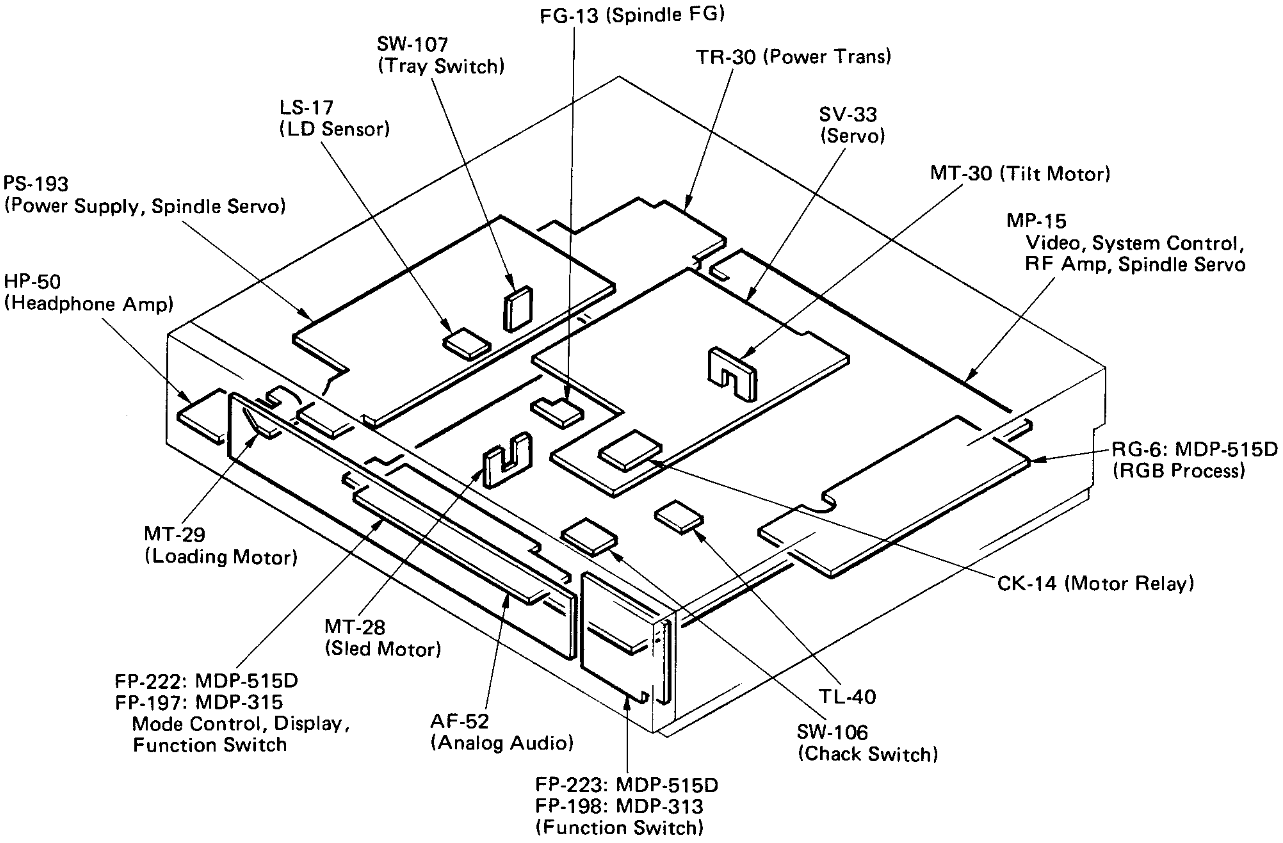
- While pressing claw ① in the direction of arrow A , shift rack ② in the direction of arrow.

2-8. REMOVAL OF TURNTABLE, SPINDLE MOTOR, SV-33 BOARD AND FG-13 BOARD

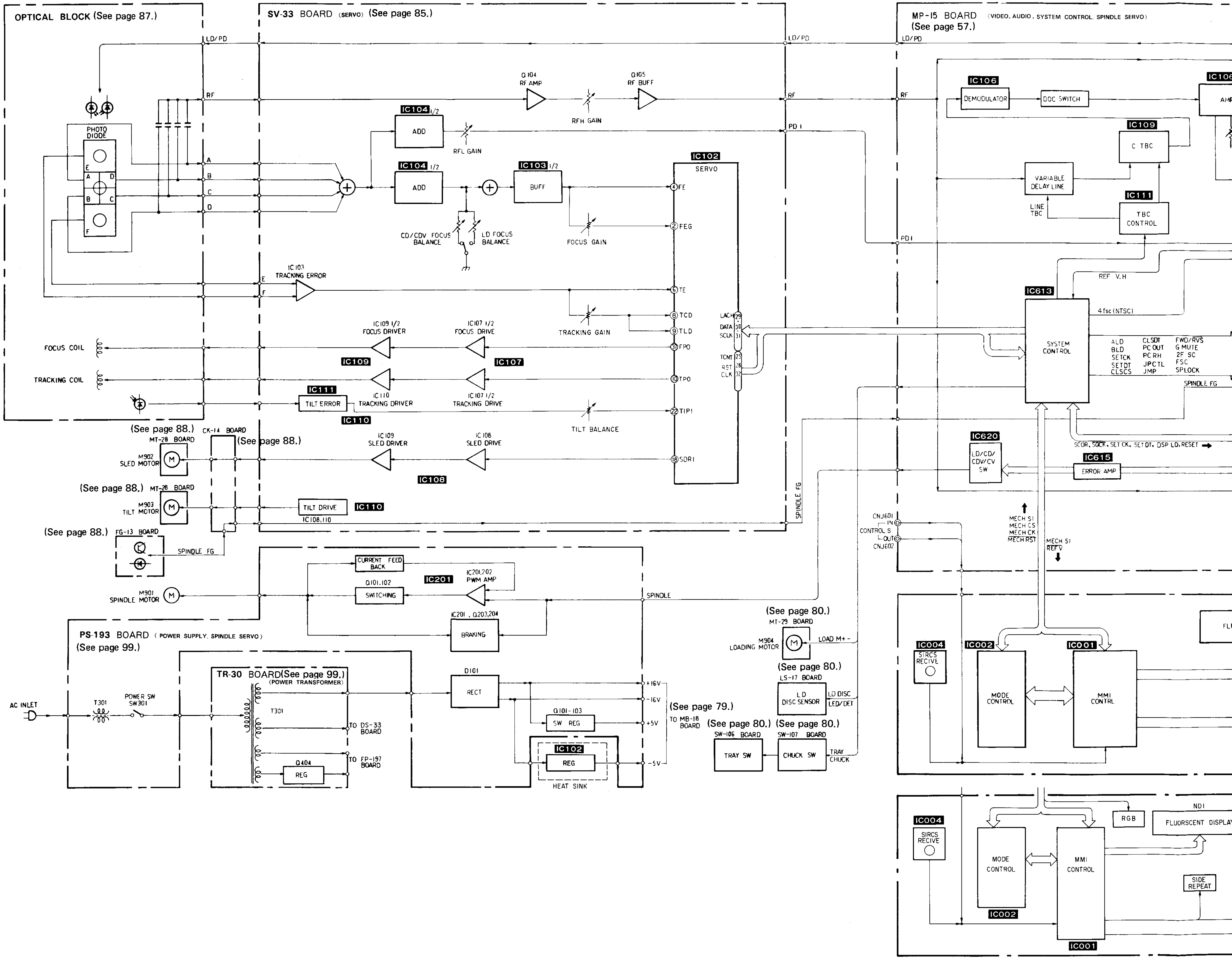

33mm
MD chassis
Center guide
Compression spring
CK-14 board
Screw (PSW 3x6)
Skew motor
② Turntable assembly
① Set screw (3x4)
③ Screw (BTP 2x8)
④ FG-13 board
⑤ Screw (PSW 3x5)
SV-33 board
⑥ Spindle motor
Screw (BVTP 3x14)

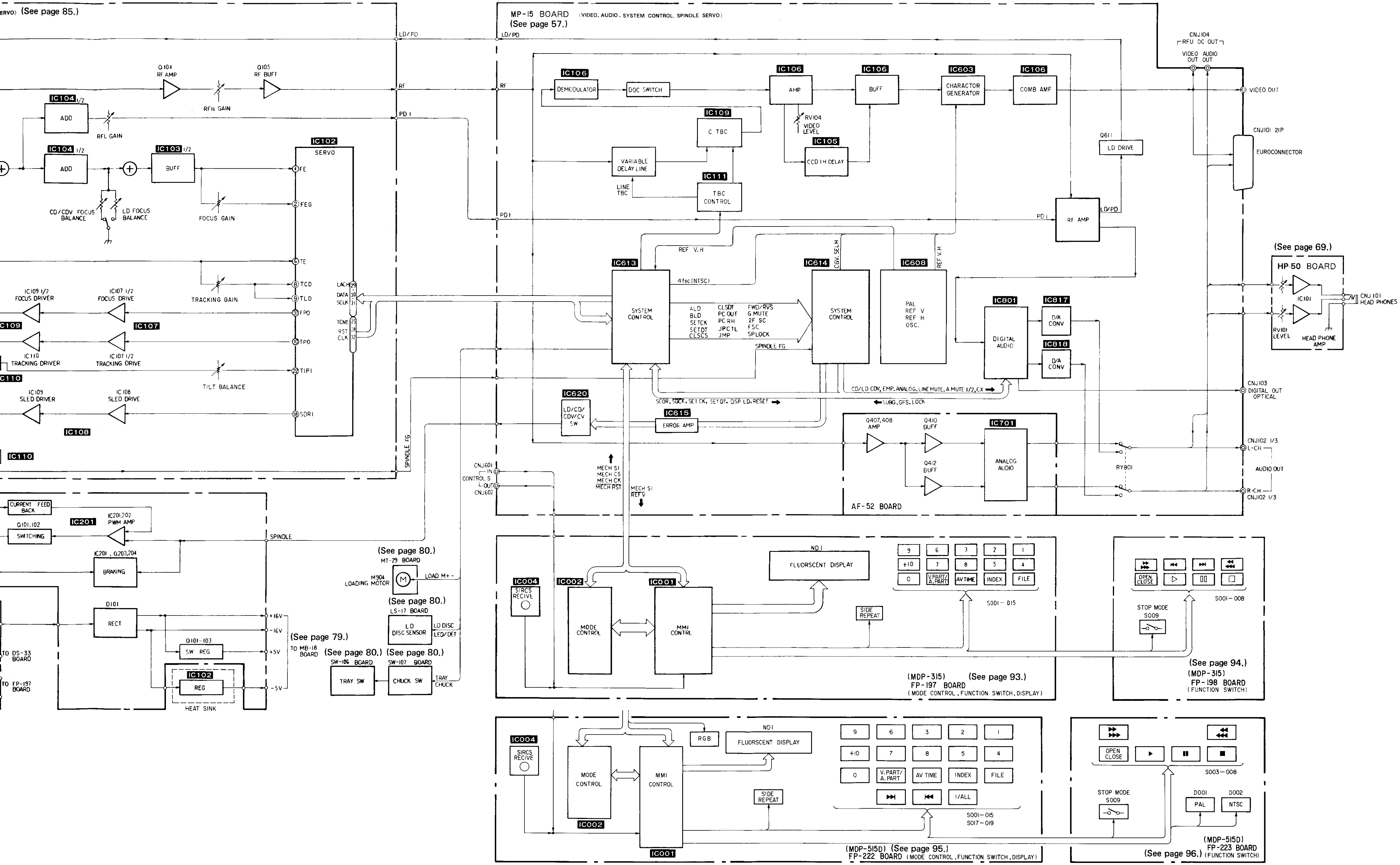
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

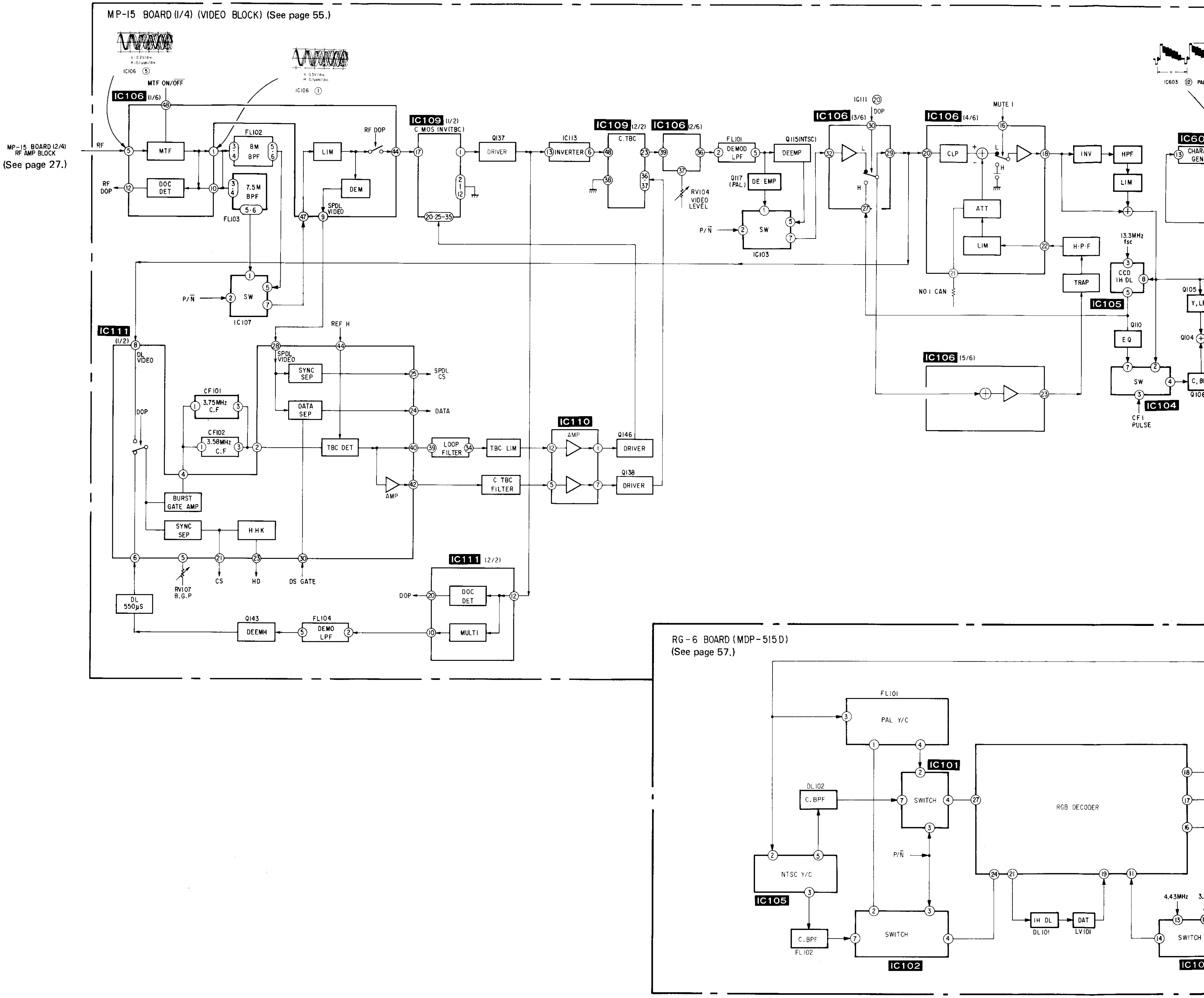

FG-13 (Spindle FG)
SW-107
(Tray Switch)
TR-30 (Power Trans)
LS-17
(LD Sensor)
SV-33
(Servo)
MT-30 (Tilt Motor)
PS-193
(Power Supply, Spindle Servo)
MP-15
Video, System Control,
RF Amp, Spindle Servo
HP-50
(Headphone Amp)
RG-6: MDP-515D
(RGB Process)
MT-29
(Loading Motor)
CK-14 (Motor Relay)
MT-28
(Sled Motor)
FP-222: MDP-515D
FP-197: MDP-315
Mode Control, Display,
Function Switch
AF-52
(Analog Audio)
TL-40
SW-106
(Chack Switch)
FP-223: MDP-515D
FP-198: MDP-313
(Function Switch)

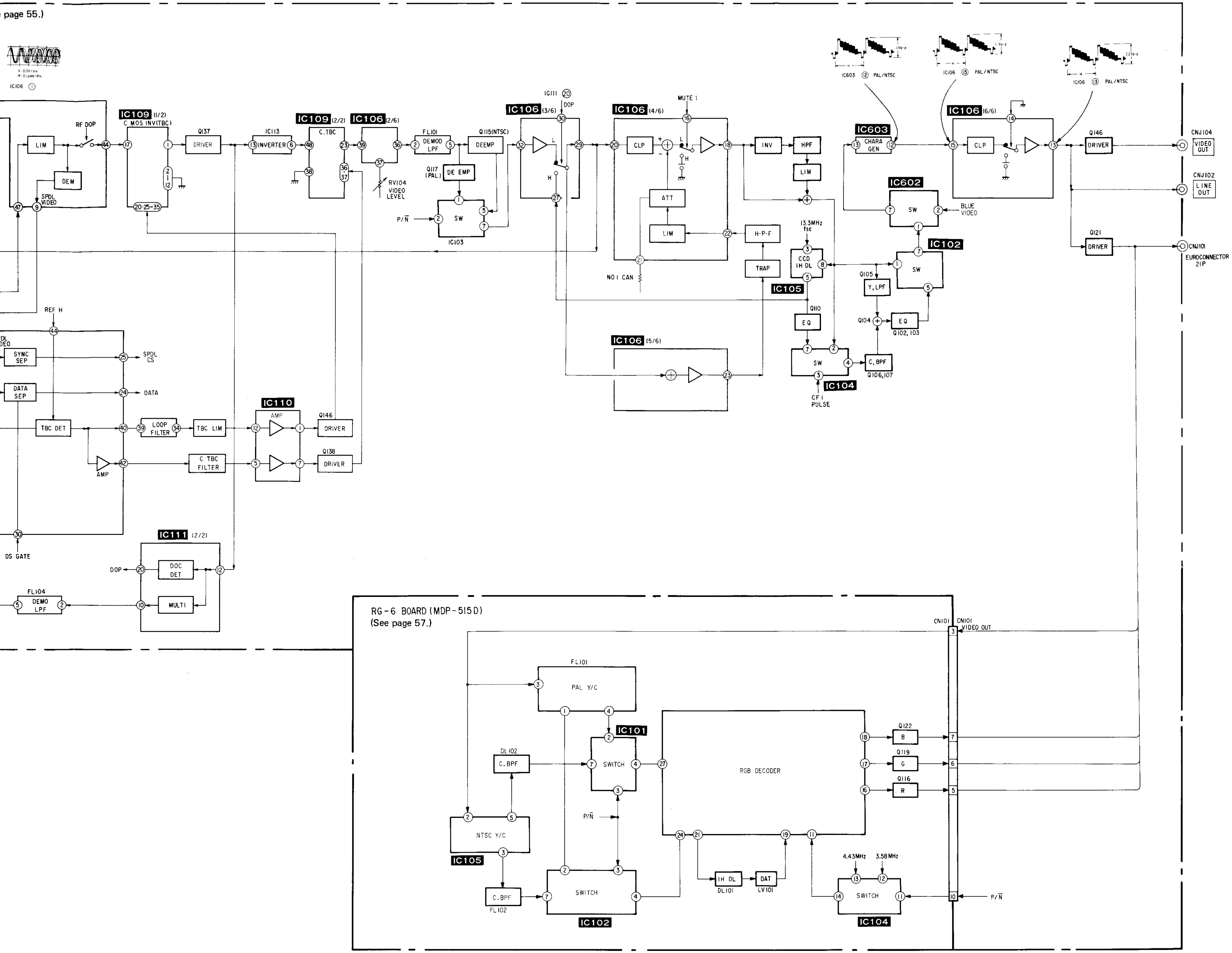
3-2. OVERALL BLOCK DIAGRAM


OPTICAL BLOCK (See page 87.)
LD/PD
RF
PHOTO DIODE
A
B
C
D
E
F
FOCUS COIL
TRACKING COIL
SV-33 BOARD (SERVO) (See page 85.)
Q104 RF AMP
Q105 RF BUFF
RFH GAIN
IC104 1/2
ADD
RFL GAIN
IC104 1/2
ADD
IC103 1/2
BUFF
CD/CDV FOCUS BALANCE
LD FOCUS BALANCE
FOCUS GAIN
IC102
SERVO
FE
FEG
TE
TCD
TLD
FPO
TPO
TIPI
SDRI
LACH
DATA
SCLK
TCNT
RST
CLK
IC103 TRACKING ERROR
TRACKING GAIN
IC109 1/2 FOCUS DRIVER
IC107 1/2 FOCUS DRIVE
IC109
IC107
IC111
TILT ERROR
IC110
IC110 TRACKING DRIVER
IC107 1/2 TRACKING DRIVE
TILT BALANCE
(See page 88.) MT-28 BOARD
CK-14 BOARD
(See page 88.)
M902 SLED MOTOR
IC109 SLED DRIVER
IC108 SLED DRIVE
IC108
(See page 88.) MT-28 BOARD
M903 TILT MOTOR
TILT DRIVE
IC108,110
IC110
(See page 88.) FG-13 BOARD
SPINDLE FG
M901 SPINDLE MOTOR
CURRENT FEED BACK
Q101,102 SWITCHING
IC201
IC201,202 PWM AMP
IC201, Q203,204 BRAKING
SPINDLE
PS-193 BOARD (POWER SUPPLY, SPINDLE SERVO)
(See page 99.)
AC INLET
T301
POWER SW SW301
TR-30 BOARD(See page 99.) (POWER TRANSFORMER)
T301
TO DS-33 BOARD
TO FP-197 BOARD
Q404 REG
D101 RECT
Q101-103 SW REG
IC102 REG
HEAT SINK
+16V
-16V
+5V
-5V
(See page 79.)
TO MB-18 BOARD
(See page 80.) MT-29 BOARD
M904 LOADING MOTOR
LOAD M+-
(See page 80.) LS-17 BOARD
LD DISC SENSOR
LD DISC
LED/DET
(See page 80.) SW-106 BOARD
TRAY SW
(See page 80.) SW-107 BOARD
CHUCK SW
TRAY
CHUCK
LD/PD
RF
PD I
PD I
SPINDLE FG
MP-15 BOARD (VIDEO, AUDIO, SYSTEM CONTROL, SPINDLE SERVO)
(See page 57.)
IC106
DEMODULATOR
DOC SWITCH
IC106
AMP
IC109
C TBC
VARIABLE DELAY LINE
IC111
TBC CONTROL
LINE TBC
REF V.H
IC613
SYSTEM CONTROL
4fsc(NTSC)
ALD CLSDT FWD/RVS
BLD PC OUT G MUTE
SETCK PC RH 2F SC
SETDT JPCTL FSC
CLSCS JMP SPLOCK
SPINDLE FG
SCOR, SQCK, SET CK, SET DT, DSP LD, RESET
IC620
LD/CD/CDV/CV SW
IC615
ERROR AMP
CNJ601 IN
CONTROL S
OUT CNJ602
MECH SI
MECH CS
MECH CK
MECH RST
MECH SI
REF V
IC004
SIRCS RECIVE
IC002
MODE CONTROL
IC001
MMI CONTRL
FL
IC004
SIRCS RECIVE
MODE CONTROL
IC002
MMI CONTROL
IC001
RGB
NDI
FLUORSCENT DISPLAY
SIDE REPEAT

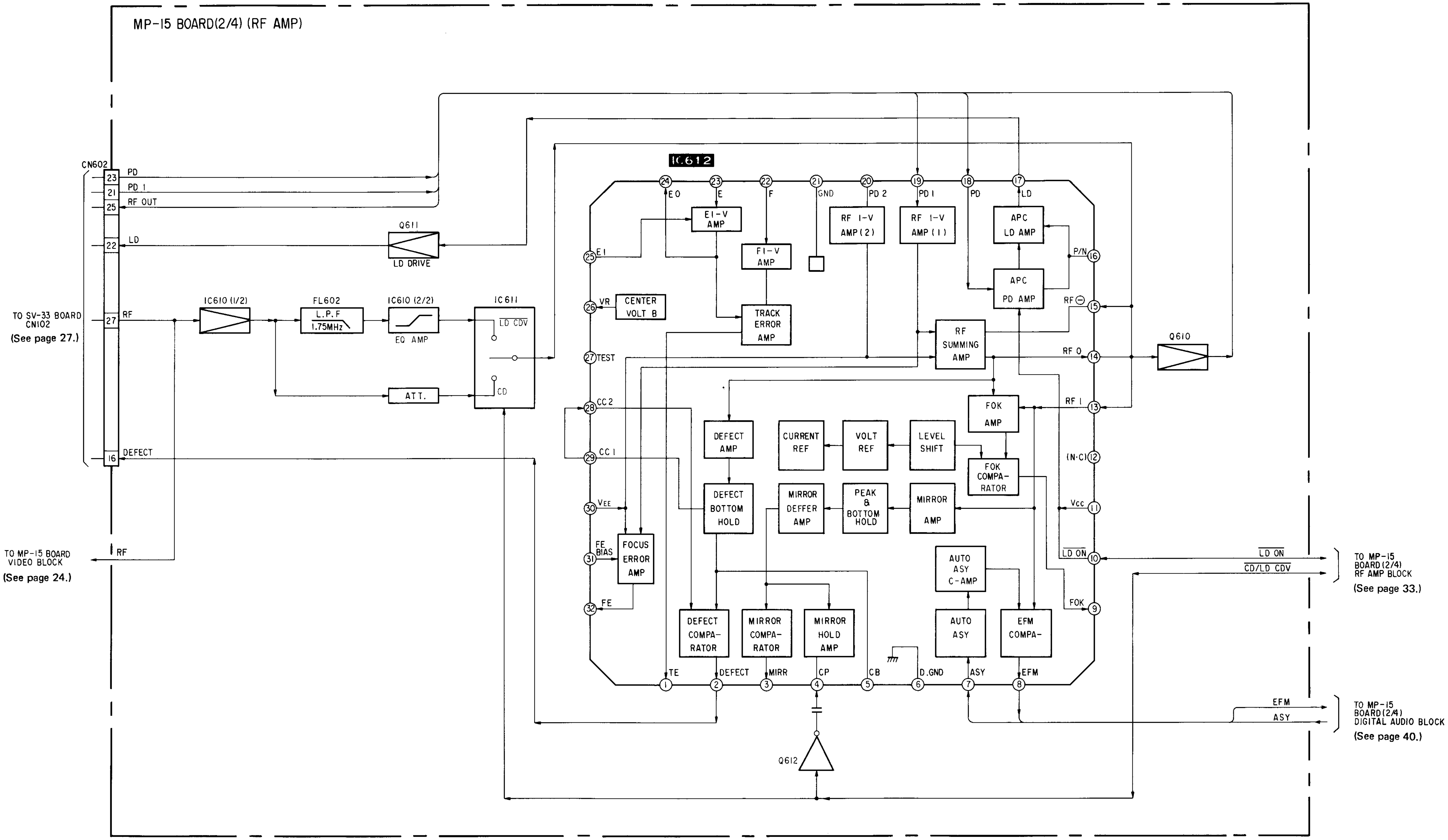

(See page 85.)
LD/PD
Q104 RF AMP
Q105 RF BUFF
RFH GAIN
RF
IC104 1/2 ADD
RFL GAIN
PD I
IC104 1/2 ADD
IC103 1/2 BUFF
IC102 SERVO
CD/CDV FOCUS BALANCE
LD FOCUS BALANCE
FOCUS GAIN
FE
FEG
TE
TCD
TLD
FPO
TPO
TIPI
SDRI
TRACKING GAIN
TILT BALANCE
LACH
DATA
SCLK
TCNT
RST
CLK
IC109 1/2 FOCUS DRIVER
IC107 1/2 FOCUS DRIVE
IC109
IC107
IC110 TRACKING DRIVER
IC107 1/2 TRACKING DRIVE
IC110
IC109 SLED DRIVER
IC108 SLED DRIVE
IC108
IC110
SPINDLE FG
CURRENT FEED BACK
Q101,102 SWITCHING
IC201
IC201,202 PWM AMP
SPINDLE
IC201, Q203,204 BRAKING
D101 RECT
Q101-103 SW REG
IC102 REG
HEAT SINK
+16V
-16V
+5V
-5V
TO DS-33 BOARD
TO FP-197 BOARD
(See page 79.)
TO MB-18 BOARD
(See page 80.) MT-29 BOARD
M904 LOADING MOTOR
LOAD M+ -
(See page 80.) LS-17 BOARD
LD DISC SENSOR
LD DISC
LED/DET
(See page 80.) SW-106 BOARD TRAY SW
(See page 80.) SW-107 BOARD CHUCK SW
TRAY CHUCK
MP-15 BOARD (VIDEO, AUDIO, SYSTEM CONTROL, SPINDLE SERVO)
(See page 57.)
IC106 DEMODULATOR
DOC SWITCH
IC106 AMP
RV104 VIDEO LEVEL
IC106 BUFF
IC603 CHARACTOR GENERATOR
IC106 COMB AMF
IC109 C TBC
IC105 CCD 1H DELAY
VARIABLE DELAY LINE
IC111 TBC CONTROL
LINE TBC
Q611 LD DRIVE
RF AMP
LD/PD
CNJ104 RFU DC OUT
VIDEO OUT
AUDIO OUT
VIDEO OUT
CNJ101 21P
EUROCONNECTOR
REF V.H
IC613 SYSTEM CONTROL
4fsc (NTSC)
ALD BLD SETCK SETDT CLSCS
CLSDT PC OUT PC RH JPCTL JMP
FWD/RVS G MUTE 2F SC FSC SPLOCK
SPINDLE FG
IC614 SYSTEM CONTROL
CGV. SELH
IC608 PAL REF V REF H OSC.
REF V.H
IC801 DIGITAL AUDIO
IC817 D/A CONV
IC818 D/A CONV
(See page 69.)
HP 50 BOARD
IC101
RV101 LEVEL
HEAD PHONE AMP
CNJ101 HEAD PHONES
CD/LD CDV, EMP, ANALOG, LINE MUTE, A MUTE 1/2, CX
SCOR, SQCK, SET CK, SET DT, DSP LD, RESET
SUBQ, GFS, LOCK
IC620 LD/CD/CDV/CV SW
IC615 ERROR AMP
Q407,408 AMP
Q410 BUFF
Q412 BUFF
IC701 ANALOG AUDIO
RY801
CNJ103 DIGITAL OUT OPTICAL
CNJ102 1/3 L-CH
AUDIO OUT
R-CH CNJ102 1/3
AF-52 BOARD
CNJ601 IN CONTROL S OUT CNJ602
MECH SI MECH CS MECH CK MECH RST
MECH SI REF V
IC004 SIRCS RECIVE
IC002 MODE CONTROL
IC001 MMI CONTRL
ND1 FLUORSCENT DISPLAY
SIDE REPEAT
9 6 3 2 1
+10 7 8 5 4
0 V.PART/A.PART AV TIME INDEX FILE
S001-015
(MDP-315) (See page 93.)
FP-197 BOARD (MODE CONTROL, FUNCTION SWITCH, DISPLAY)
OPEN CLOSE
STOP MODE S009
S001-008
(See page 94.)
(MDP-315)
FP-198 BOARD (FUNCTION SWITCH)
IC004 SIRCS RECIVE
MODE CONTROL
IC002
MMI CONTROL
IC001
RGB
ND1 FLUORSCENT DISPLAY
SIDE REPEAT
9 6 3 2 1
+10 7 8 5 4
0 V.PART/A.PART AV TIME INDEX FILE
I/ALL
S001-015 S017-019
(MDP-515D) (See page 95.)
FP-222 BOARD (MODE CONTROL, FUNCTION SWITCH, DISPLAY)
OPEN CLOSE
S003-008
STOP MODE S009
D001 PAL
D002 NTSC
(MDP-515D)
FP-223 BOARD
(See page 96.) (FUNCTION SWITCH)

3-3. VIDEO BLOCK DIAGRAM

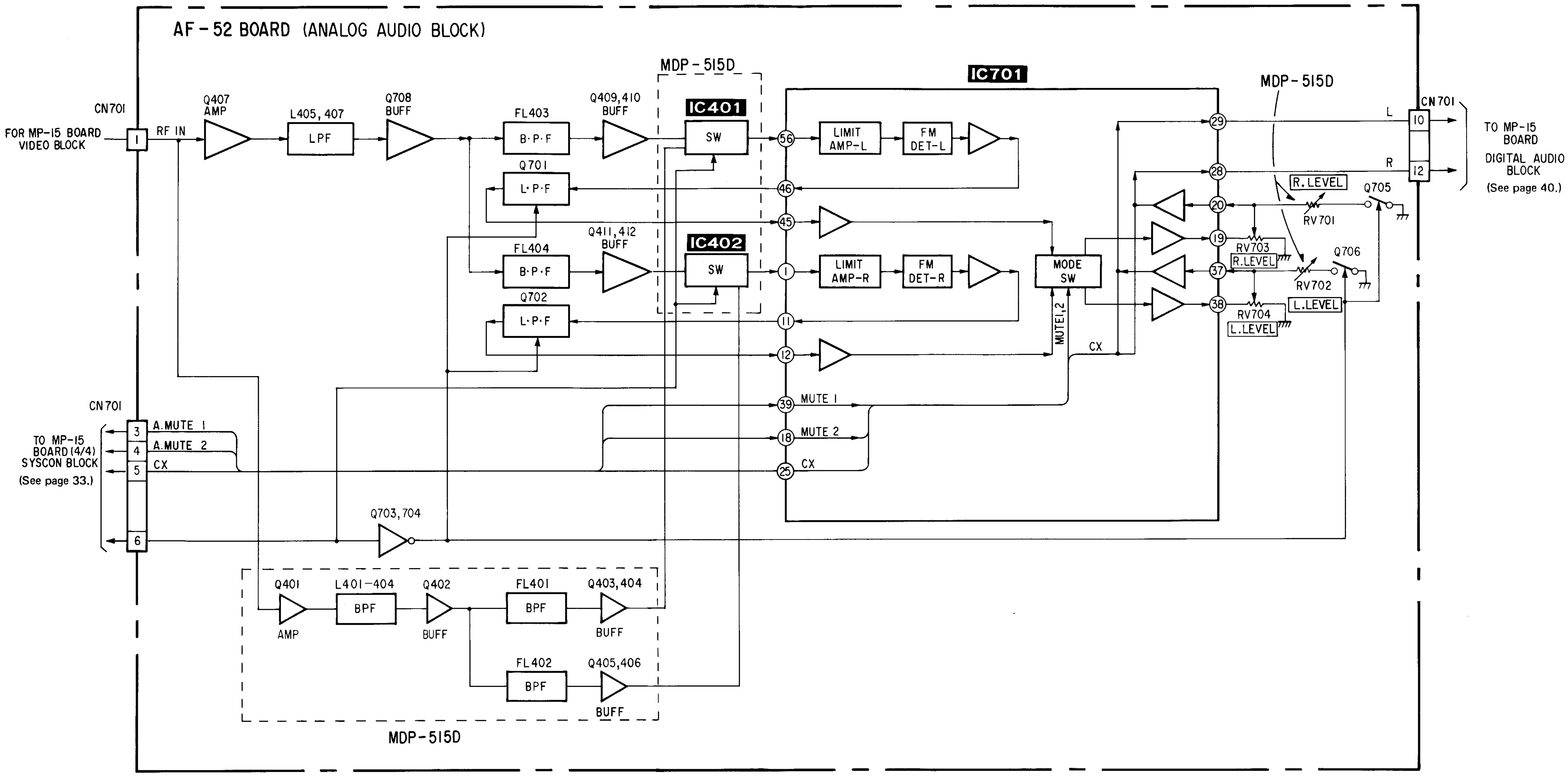

MP-15 BOARD (1/4) (VIDEO BLOCK) (See page 55.)
MP-15 BOARD (2/4) RF AMP BLOCK
(See page 27.)
IC106 ⑤
IC106 ①
MTF ON/OFF
IC106 (1/6)
RF
RF DOP
MTF
DOC DET
FL102
8M BPF
7.5M BPF
FL103
LIM
RF DOP
DEM
SPDL VIDEO
IC109 (1/2)
C MOS (INVTBC)
Q137
DRIVER
IC113
INVERTER
IC109 (2/2)
C.TBC
IC106 (2/6)
RV104 VIDEO LEVEL
FL101
DEMOD LPF
Q115(NTSC)
DEEMP
Q117 (PAL)
DE EMP
P/N
SW
IC103
IC111 ⑳
DOP
IC106 (3/6)
L
H
IC106 (4/6)
MUTE I
CLP
ATT
LIM
NOI CAN
INV
HPF
LIM
H·P·F
TRAP
13.3MHz fsc
CCD 1H DL
IC105
Q105
Y, L
Q110
EQ
Q104
SW
IC104
C, B
Q106
CFI PULSE
IC603 ⑫ PA
IC60
CHAR GEN
IC106 (5/6)
P/N
SW
IC107
IC111 (1/2)
DL VIDEO
DOP
REF H
SPDL VIDEO
SYNC SEP
DATA SEP
SPDL CS
DATA
CF101
3.75MHz C.F
CF102
3.58MHz C.F
TBC DET
LOOP FILTER
TBC LIM
IC110
AMP
Q146
DRIVER
Q138
DRIVER
C TBC FILTER
AMP
BURST GATE AMP
SYNC SEP
HHK
RV107 B.G.P
CS
HD
DS GATE
DL 550μS
IC111 (2/2)
DOP
DOC DET
MULTI
Q143
DEEMH
FL104
DEMO LPF
RG-6 BOARD (MDP-515D)
(See page 57.)
FL101
PAL Y/C
IC101
DL102
C.BPF
SWITCH
RGB DECODER
P/N
NTSC Y/C
IC105
C.BPF
FL102
SWITCH
IC102
1H DL
DL101
DAT
LV101
4.43MHz
SWITCH
IC10


page 55.)
IC106 ①
IC109 (1/2)
C MOS INV (TBC)
RF DOP
LIM
DEM
SPDL VIDEO
Q137
DRIVER
IC113
INVERTER
IC109 (2/2)
C.TBC
IC106 (2/6)
RV104
VIDEO LEVEL
FL101
DEMOD LPF
Q115 (NTSC)
DEEMP
Q117 (PAL)
DE EMP
P/N̄
SW
IC103
IC111 ⑳
DOP
IC106 (3/6)
L
H
MUTE 1
IC106 (4/6)
CLP
ATT
LIM
NOI CAN
INV
HPF
LIM
H-P-F
TRAP
13.3MHz fsc
CCD 1H DL
IC105
Q110
EQ
SW
IC104
CF1 PULSE
IC106 (5/6)
IC603 ② PAL/NTSC
IC106 ⑮ PAL/NTSC
IC106 ⑬ PAL/NTSC
IC603
CHARA GEN
IC602
SW
BLUE VIDEO
IC102
SW
Q105
Y, LPF
Q104
EQ
Q102, 103
C, BPF
Q106, 107
IC106 (6/6)
CLP
Q146
DRIVER
CNJ104
VIDEO OUT
CNJ102
LINE OUT
Q121
DRIVER
CNJ101
EUROCONNECTOR 21P
REF H
SYNC SEP
SPDL CS
DATA SEP
DATA
TBC DET
LOOP FILTER
TBC LIM
IC110
AMP
Q146
DRIVER
AMP
C TBC FILTER
Q138
DRIVER
DS GATE
IC111 (2/2)
DOP
DOC DET
MULTI
FL104
DEMO LPF
RG-6 BOARD (MDP-515D)
(See page 57.)
CN101
CN101 VIDEO OUT
FL101
PAL Y/C
IC101
SWITCH
DL102
C. BPF
RGB DECODER
Q122
B
Q119
G
Q116
R
P/N̄
NTSC Y/C
IC105
C. BPF
FL102
SWITCH
IC102
1H DL
DL101
DAT
LV101
4.43MHz
3.58MHz
SWITCH
IC104
P/N̄

3-4. RF AMP BLOCK DIAGRAM


MP-15 BOARD(2/4) (RF AMP)
CN602
PD
PD 1
RF OUT
LD
RF
DEFECT
TO SV-33 BOARD CN102
(See page 27.)
TO MP-15 BOARD VIDEO BLOCK
(See page 24.)
Q611
LD DRIVE
IC610 (1/2)
FL602
L.P.F
1.75MHz
IC610 (2/2)
EQ AMP
ATT.
IC611
LD CDV
CD
IC612
EO
E
F
GND
PD 2
PD 1
PD
LD
EI-V AMP
FI-V AMP
RF I-V AMP (2)
RF I-V AMP (1)
APC LD AMP
APC PD AMP
P/N
RF ⊖
RF O
RF I
(N·C)
Vcc
LD ON
FOK
E I
VR
CENTER VOLT B
TRACK ERROR AMP
TEST
RF SUMMING AMP
CC 2
CC 1
VEE
FE BIAS
FE
FOCUS ERROR AMP
DEFECT AMP
CURRENT REF
VOLT REF
LEVEL SHIFT
FOK AMP
FOK COMPA-RATOR
DEFECT BOTTOM HOLD
MIRROR DEFFER AMP
PEAK & BOTTOM HOLD
MIRROR AMP
AUTO ASY C-AMP
DEFECT COMPA-RATOR
MIRROR COMPA-RATOR
MIRROR HOLD AMP
AUTO ASY
EFM COMPA-
TE
DEFECT
MIRR
CP
CB
D.GND
ASY
EFM
Q612
Q610
LD ON
CD/LD CDV
TO MP-15 BOARD (2/4) RF AMP BLOCK
(See page 33.)
EFM
ASY
TO MP-15 BOARD (2/4) DIGITAL AUDIO BLOCK
(See page 40.)

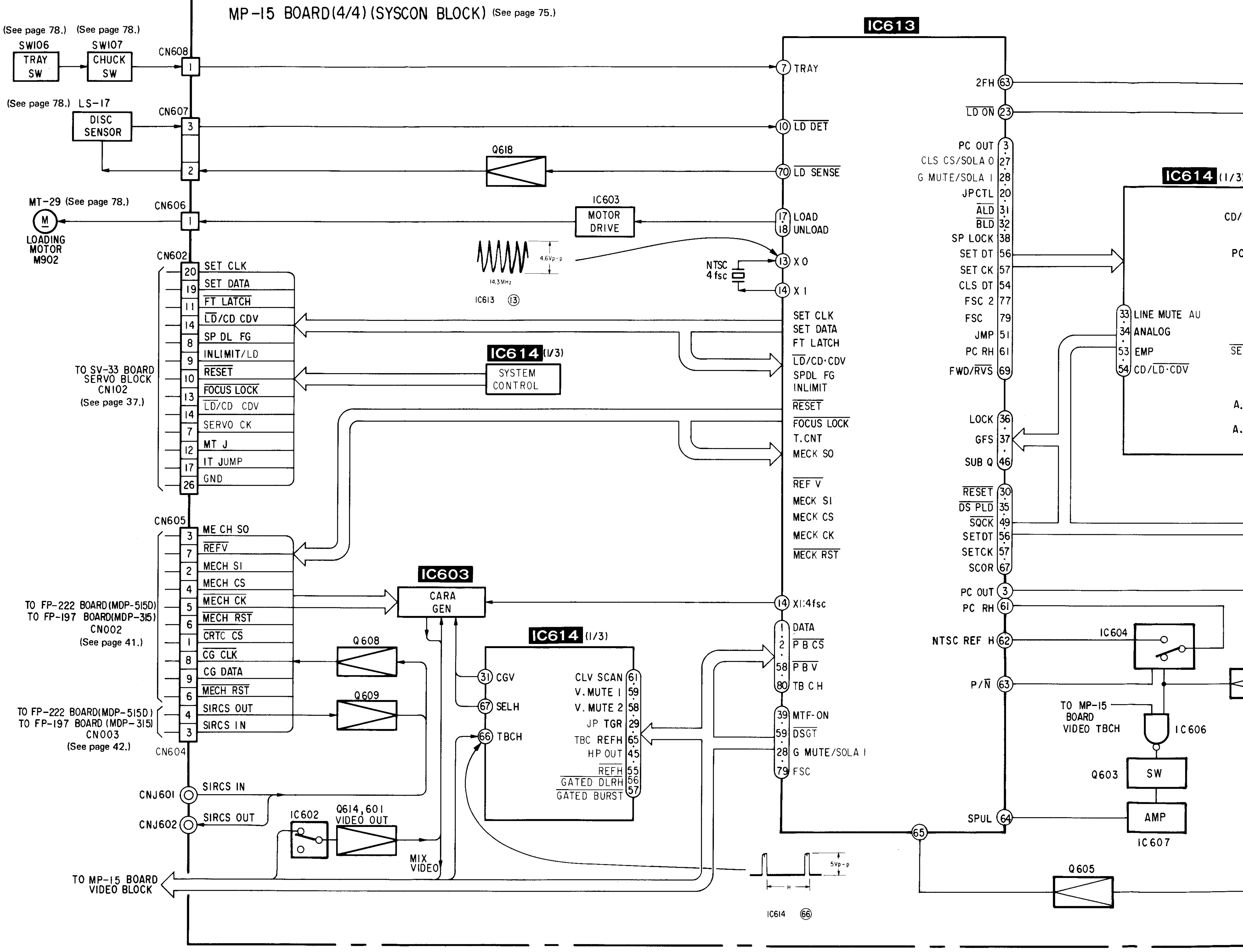
3-5. ANALOG AUDIO BLOCK DIAGRAM

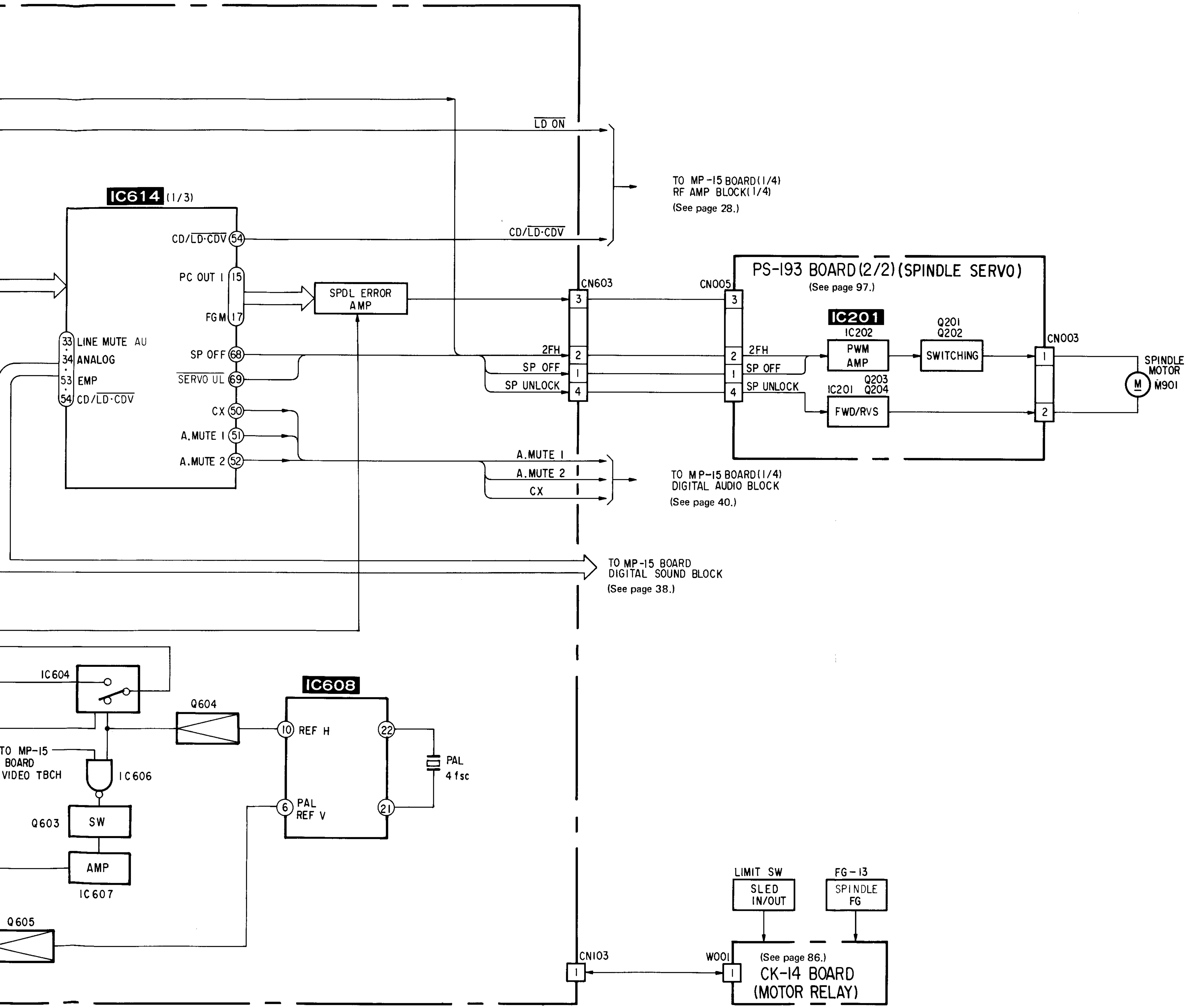

AF-52 BOARD (ANALOG AUDIO BLOCK)
CN701
FOR MP-15 BOARD VIDEO BLOCK
1
RF IN
Q407 AMP
L405, 407
LPF
Q708 BUFF
FL403
B·P·F
Q409,410 BUFF
MDP-515D
IC401
SW
Q701
L·P·F
FL404
B·P·F
Q411, 412 BUFF
IC402
SW
Q702
L·P·F
IC701
56
LIMIT AMP-L
FM DET-L
46
45
1
LIMIT AMP-R
FM DET-R
11
12
MODE SW
MUTE1,2
CX
39
MUTE 1
18
MUTE 2
25
CX
MDP-515D
29
28
20
19
37
38
L
R
R.LEVEL
RV701
Q705
RV703
R.LEVEL
RV702
Q706
RV704
L.LEVEL
L.LEVEL
CN701
10
12
TO MP-15 BOARD DIGITAL AUDIO BLOCK
(See page 40.)
CN701
3
4
5
6
A.MUTE 1
A.MUTE 2
CX
TO MP-15 BOARD (4/4) SYSCON BLOCK
(See page 33.)
Q703, 704
Q401
AMP
L401-404
BPF
Q402
BUFF
FL401
BPF
Q403,404
BUFF
FL402
BPF
Q405,406
BUFF
MDP-515D

.)

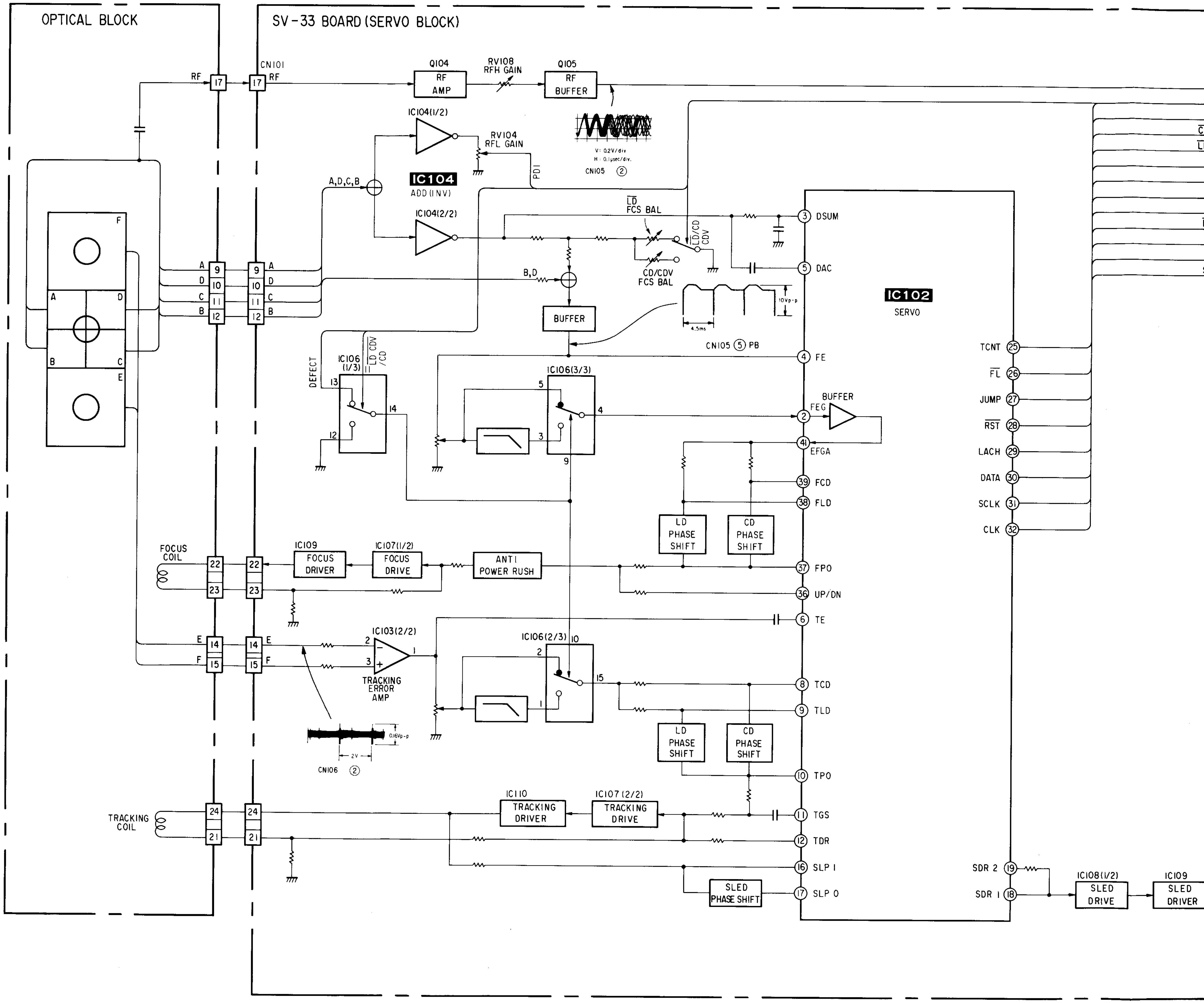
BLOCK
.)

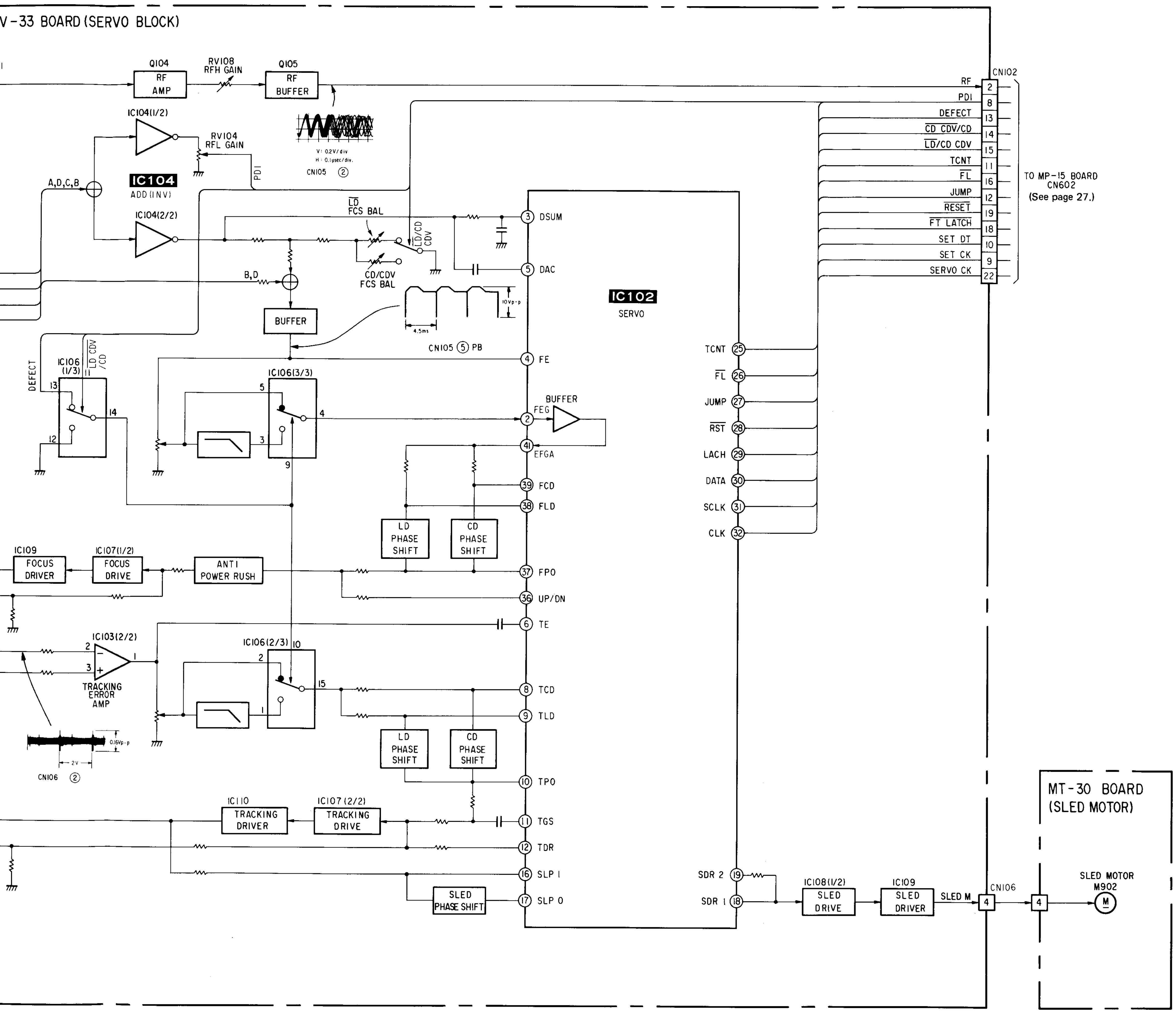
3-6. SYSTEM CONTROL BLOCK DIAGRAM


MP-15 BOARD(4/4)(SYSCON BLOCK) (See page 75.)
(See page 78.) SW106 TRAY SW
(See page 78.) SW107 CHUCK SW
(See page 78.) LS-17 DISC SENSOR
MT-29 (See page 78.)
M
LOADING MOTOR M902
CN608
CN607
CN606
CN602
CN605
CN604
Q618
IC603 MOTOR DRIVE
4.6Vp-p
14.3MHz
IC613 ⑬
NTSC 4fsc
IC613
TRAY
LD DET
LD SENSE
LOAD
UNLOAD
X O
X I
SET CLK
SET DATA
FT LATCH
LD/CD CDV
SP DL FG
INLIMIT/LD
RESET
FOCUS LOCK
LD/CD CDV
SERVO CK
MT J
IT JUMP
GND
TO SV-33 BOARD SERVO BLOCK CN102 (See page 37.)
IC614 (1/3) SYSTEM CONTROL
SET CLK
SET DATA
FT LATCH
LD/CD·CDV
SPDL FG
INLIMIT
RESET
FOCUS LOCK
T.CNT
MECK SO
REF V
MECK SI
MECK CS
MECK CK
MECK RST
ME CH SO
REFV
MECH SI
MECH CS
MECH CK
MECH RST
CRTC CS
CG CLK
CG DATA
MECH RST
SIRCS OUT
SIRCS IN
TO FP-222 BOARD(MDP-515D)
TO FP-197 BOARD(MDP-315)
CN002
(See page 41.)
TO FP-222 BOARD(MDP-515D)
TO FP-197 BOARD (MDP-315)
CN003
(See page 42.)
IC603 CARA GEN
Q608
Q609
XI:4fsc
DATA
PBCS
PBV
TB CH
IC614 (1/3)
CGV
SELH
TBCH
CLV SCAN
V.MUTE 1
V.MUTE 2
JP TGR
TBC REFH
HP OUT
REFH
GATED DLRH
GATED BURST
MTF-ON
DSGT
G MUTE/SOLA I
FSC
CNJ601 SIRCS IN
CNJ602 SIRCS OUT
IC602
Q614,601 VIDEO OUT
MIX VIDEO
TO MP-15 BOARD VIDEO BLOCK
5Vp-p
H
IC614 ⑯
2FH
LD ON
PC OUT
CLS CS/SOLA 0
G MUTE/SOLA 1
JPCTL
ALD
BLD
SP LOCK
SET DT
SET CK
CLS DT
FSC 2
FSC
JMP
PC RH
FWD/RVS
LOCK
GFS
SUB Q
RESET
DS PLD
SQCK
SETDT
SETCK
SCOR
PC OUT
PC RH
NTSC REF H
P/N
SPUL
IC614 (1/3)
LINE MUTE AU
ANALOG
EMP
CD/LD·CDV
IC604
TO MP-15 BOARD VIDEO TBCH
IC606
Q603 SW
AMP
IC607
Q605

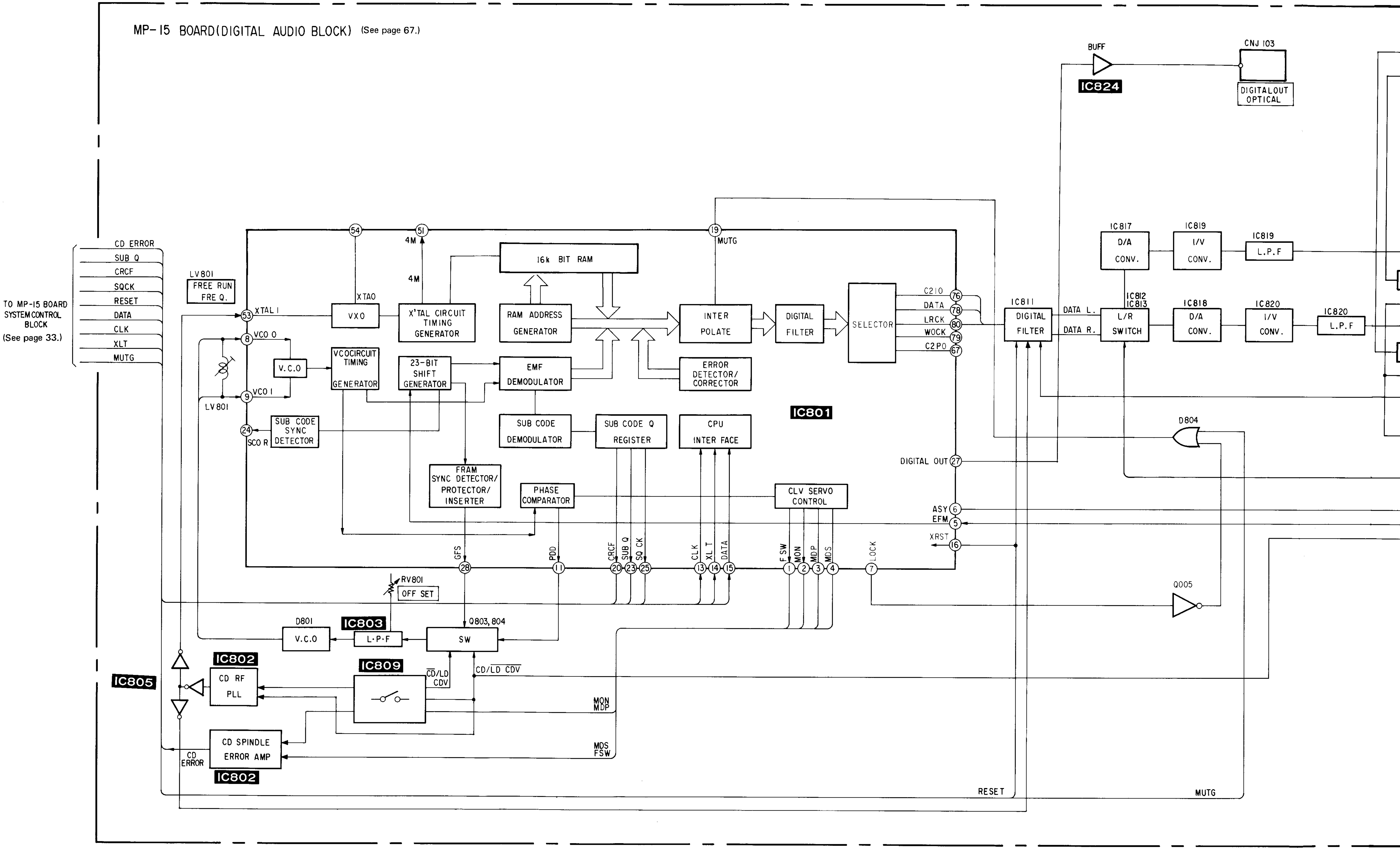

LD ON
TO MP-15 BOARD(1/4)
RF AMP BLOCK(1/4)
(See page 28.)
IC614 (1/3)
CD/LD·CDV 54
CD/LD·CDV
PC OUT 1 15
FGM 17
SPDL ERROR AMP
33 LINE MUTE AU
34 ANALOG
53 EMP
54 CD/LD·CDV
SP OFF 68
SERVO UL 69
CX 50
A.MUTE 1 51
A.MUTE 2 52
CN603
2FH
SP OFF
SP UNLOCK
CN005
PS-193 BOARD(2/2)(SPINDLE SERVO)
(See page 97.)
IC201
IC202
PWM AMP
Q201
Q202
SWITCHING
Q203
Q204
IC201
FWD/RVS
CN003
SPINDLE MOTOR
M
M901
A.MUTE 1
A.MUTE 2
CX
TO MP-15 BOARD(1/4)
DIGITAL AUDIO BLOCK
(See page 40.)
TO MP-15 BOARD
DIGITAL SOUND BLOCK
(See page 38.)
IC604
Q604
IC608
10 REF H
22
PAL 4 fsc
6 PAL REF V
21
TO MP-15 BOARD VIDEO TBCH
IC606
Q603
SW
AMP
IC607
Q605
LIMIT SW
SLED IN/OUT
FG-13
SPINDLE FG
CN103
W001
(See page 86.)
CK-14 BOARD (MOTOR RELAY)

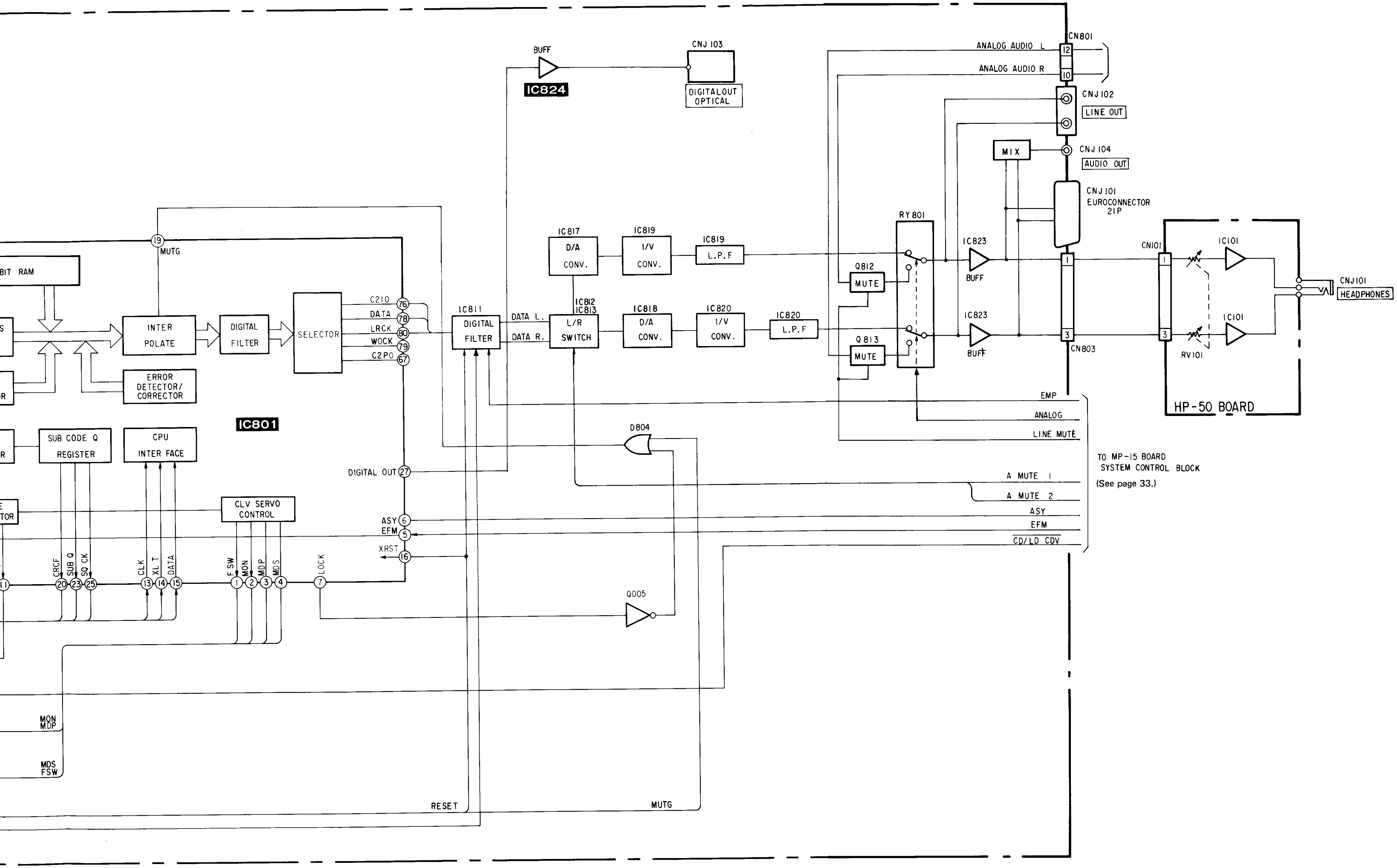
3-7. SERVO BLOCK DIAGRAM


OPTICAL BLOCK
SV-33 BOARD (SERVO BLOCK)
CN101
RF
17
Q104
RF AMP
RV108
RFH GAIN
Q105
RF BUFFER
V: 0.2V/div
H: 0.1μsec/div.
CN105 ②
IC104(1/2)
RV104
RFL GAIN
PD1
A,D,C,B
IC104
ADD (INV)
IC104(2/2)
LD
FCS BAL
LD/CD
CDV
CD/CDV
FCS BAL
B,D
BUFFER
4.5ms
10Vp-p
CN105 ⑤ PB
IC102
SERVO
③ DSUM
⑤ DAC
④ FE
② FEG
BUFFER
㊶ EFGA
㊴ FCD
㊳ FLD
㊲ FPO
㊱ UP/DN
⑥ TE
⑧ TCD
⑨ TLD
⑩ TPO
⑪ TGS
⑫ TDR
⑯ SLP I
⑰ SLP O
㉕ TCNT
㉖ FL
㉗ JUMP
㉘ RST
㉙ LACH
㉚ DATA
㉛ SCLK
㉜ CLK
⑲ SDR 2
⑱ SDR 1
F
A
D
B
C
E
9
10
11
12
DEFECT
IC106 (1/3)
LD CDV /CD
13
11
14
12
IC106(3/3)
5
4
3
9
LD PHASE SHIFT
CD PHASE SHIFT
FOCUS COIL
22
23
IC109
FOCUS DRIVER
IC107(1/2)
FOCUS DRIVE
ANTI POWER RUSH
14
15
IC103(2/2)
2
3
1
TRACKING ERROR AMP
IC106(2/3)
10
2
15
1
LD PHASE SHIFT
CD PHASE SHIFT
0.16Vp-p
2V
CN106 ②
TRACKING COIL
24
21
IC110
TRACKING DRIVER
IC107 (2/2)
TRACKING DRIVE
SLED PHASE SHIFT
IC108(1/2)
SLED DRIVE
IC109
SLED DRIVER


V-33 BOARD (SERVO BLOCK)
Q104
RF AMP
RV108
RFH GAIN
Q105
RF BUFFER
V: 0.2V/div
H: 0.1μsec/div.
CN105 ②
IC104(1/2)
RV104
RFL GAIN
PDI
A,D,C,B
IC104
ADD (INV)
IC104(2/2)
LD FCS BAL
LD/CD
CDV
CD/CDV FCS BAL
B,D
BUFFER
10Vp-p
4.5ms
CN105 ⑤ PB
DEFECT
IC106 (1/3)
LD CDV /CD
13
11
14
12
IC106(3/3)
5
4
3
9
BUFFER
FEG
EFGA
IC102
SERVO
③ DSUM
⑤ DAC
④ FE
②
㊶
㊴ FCD
㊳ FLD
LD PHASE SHIFT
CD PHASE SHIFT
㊲ FPO
㊱ UP/DN
⑥ TE
IC109
FOCUS DRIVER
IC107(1/2)
FOCUS DRIVE
ANTI POWER RUSH
IC103(2/2)
TRACKING ERROR AMP
IC106(2/3)
10
2
15
1
0.16Vp-p
2V
CN106 ②
⑧ TCD
⑨ TLD
⑩ TPO
⑪ TGS
⑫ TDR
⑯ SLP I
⑰ SLP O
IC110
TRACKING DRIVER
IC107 (2/2)
TRACKING DRIVE
SLED PHASE SHIFT
TCNT ㉕
FL ㉖
JUMP ㉗
RST ㉘
LACH ㉙
DATA ㉚
SCLK ㉛
CLK ㉜
SDR 2 ⑲
SDR 1 ⑱
IC108(1/2)
SLED DRIVE
IC109
SLED DRIVER
SLED M
CN106
4
CN102
RF 2
PDI 8
DEFECT 13
CD CDV/CD 14
LD/CD CDV 15
TCNT 11
FL 16
JUMP 12
RESET 19
FT LATCH 18
SET DT 10
SET CK 9
SERVO CK 22
TO MP-15 BOARD CN602 (See page 27.)
MT-30 BOARD (SLED MOTOR)
SLED MOTOR M902
M

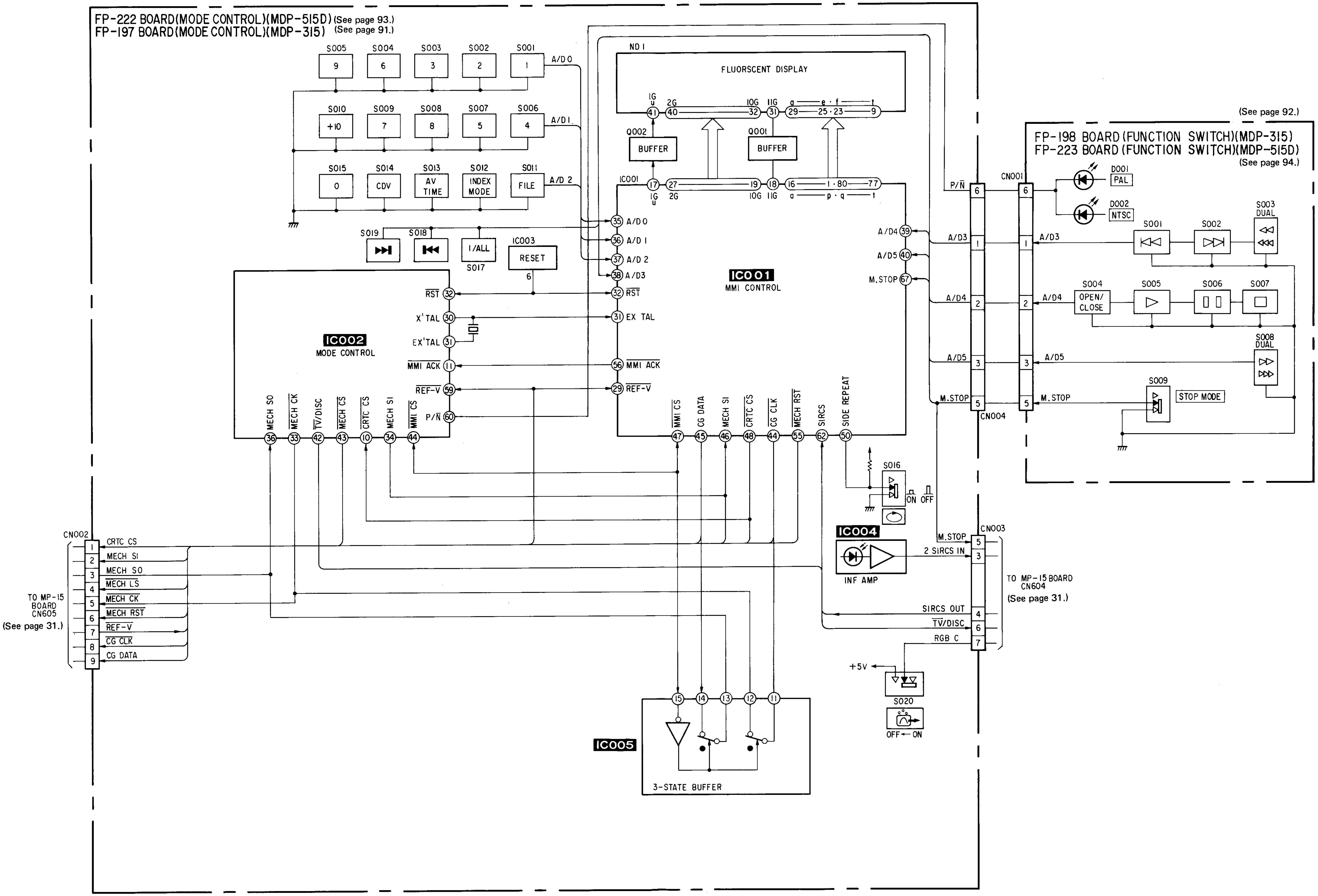
3-8. DIGITAL AUDIO BLOCK DIAGRAM


MP-15 BOARD(DIGITAL AUDIO BLOCK) (See page 67.)
TO MP-15 BOARD SYSTEM CONTROL BLOCK
(See page 33.)
CD ERROR
SUB Q
CRCF
SQCK
RESET
DATA
CLK
XLT
MUTG
LV801
FREE RUN FRE Q.
XTAL I
VCO O
VCO I
LV801
SCO R
SUB CODE SYNC DETECTOR
V.C.O
VXO
XTAO
4M
4M
X'TAL CIRCUIT TIMING GENERATOR
VCOCIRCUIT TIMING GENERATOR
23-BIT SHIFT GENERATOR
16k BIT RAM
RAM ADDRESS GENERATOR
EMF DEMODULATOR
SUB CODE DEMODULATOR
SUB CODE Q REGISTER
CPU INTER FACE
INTER POLATE
DIGITAL FILTER
SELECTOR
ERROR DETECTOR/ CORRECTOR
MUTG
IC801
FRAM SYNC DETECTOR/ PROTECTOR/ INSERTER
PHASE COMPARATOR
CLV SERVO CONTROL
C210
DATA
LRCK
WOCK
C2PO
DIGITAL OUT
ASY
EFM
XRST
GFS
PDD
CRCF
SUB Q
SQ CK
CLK
XLT
DATA
F SW
MON
MDP
MDS
LOCK
54
51
19
53
8
9
24
76
78
80
79
67
27
6
5
16
28
11
20
23
25
13
14
15
1
2
3
4
7
RV801
OFF SET
D801
V.C.O
IC803
L·P·F
SW
Q803, 804
IC802
CD RF PLL
IC809
CD/LD CDV
CD/LD CDV
MON MDP
MDS FSW
IC805
CD SPINDLE ERROR AMP
CD ERROR
IC802
RESET
MUTG
BUFF
IC824
CNJ 103
DIGITAL OUT OPTICAL
IC811
DIGITAL FILTER
DATA L.
DATA R.
IC817
D/A CONV.
IC819
I/V CONV.
IC819
L.P.F
IC812
IC813
L/R SWITCH
IC818
D/A CONV.
IC820
I/V CONV.
IC820
L.P.F
D804
Q005

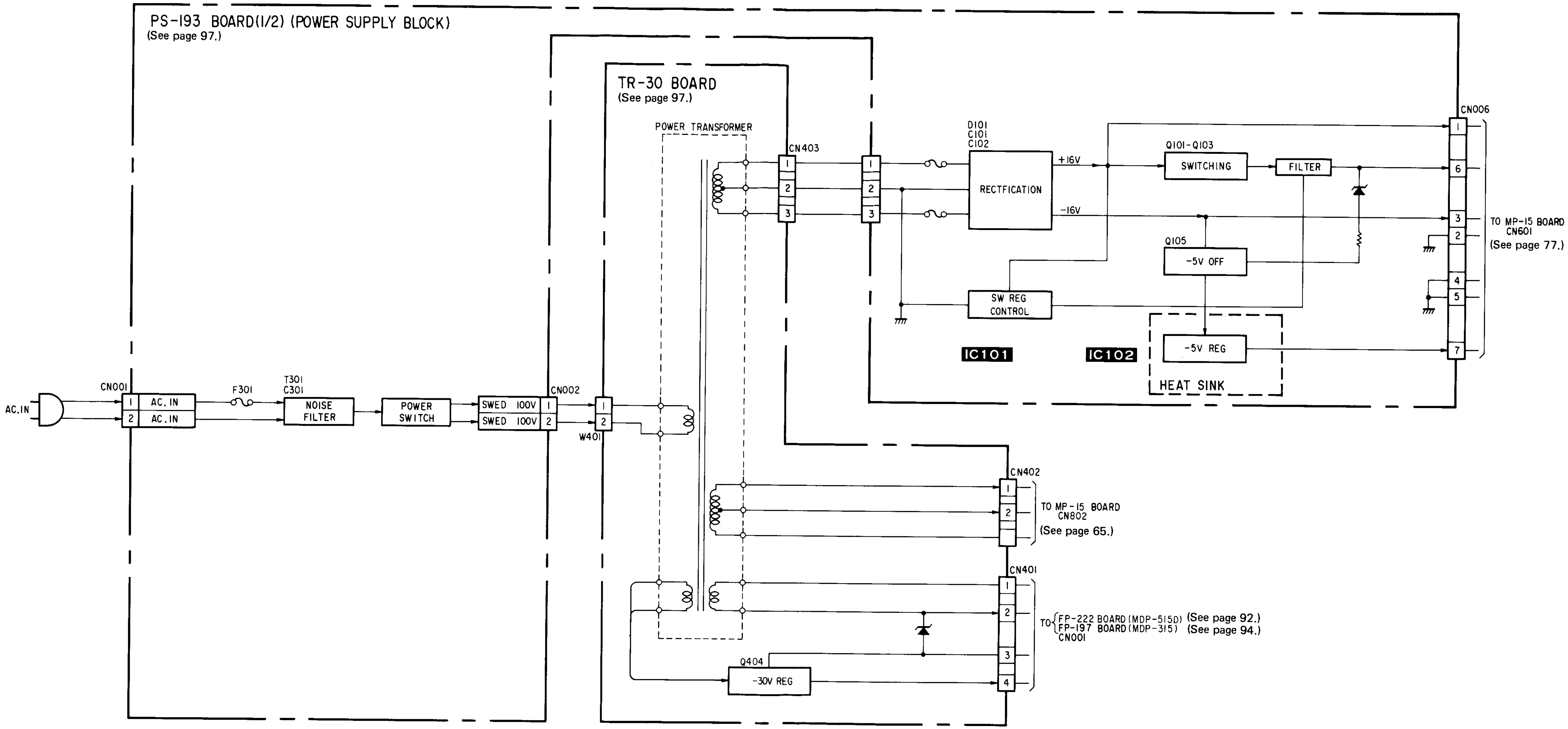


BUFF
IC824
CNJ 103
DIGITALOUT OPTICAL
BIT RAM
19
MUTG
INTER POLATE
DIGITAL FILTER
SELECTOR
C2I0
DATA
LRCK
WOCK
C2PO
76
78
80
79
67
ERROR DETECTOR/ CORRECTOR
IC801
SUB CODE Q REGISTER
CPU INTER FACE
CLV SERVO CONTROL
DIGITAL OUT
27
ASY
6
EFM
5
XRST
16
CRCF
SUB Q
SQ CK
20
23
25
CLK
XLT
DATA
13
14
15
F SW
MON
MDP
MDS
1
2
3
4
LOCK
7
MON
MDP
MDS
FSW
RESET
MUTG
IC811
DIGITAL FILTER
DATA L.
DATA R.
IC812
IC813
L/R SWITCH
IC817
D/A CONV.
IC819
I/V CONV.
IC819
L.P.F
IC818
D/A CONV.
IC820
I/V CONV.
IC820
L.P.F
D804
Q005
Q812
MUTE
Q813
MUTE
RY801
IC823
BUFF
IC823
BUFF
MIX
CN801
ANALOG AUDIO L
ANALOG AUDIO R
12
10
CNJ102
LINE OUT
CNJ 104
AUDIO OUT
CNJ101
EUROCONNECTOR
21P
1
3
CN803
EMP
ANALOG
LINE MUTE
A MUTE 1
A MUTE 2
ASY
EFM
CD/LD CDV
TO MP-15 BOARD
SYSTEM CONTROL BLOCK
(See page 33.)
CN101
1
3
IC101
IC101
RV101
CNJ101
HEADPHONES
HP-50 BOARD

3-9. MODE CONTROL/FUNCTION SWITCH BLOCK DIAGRAM

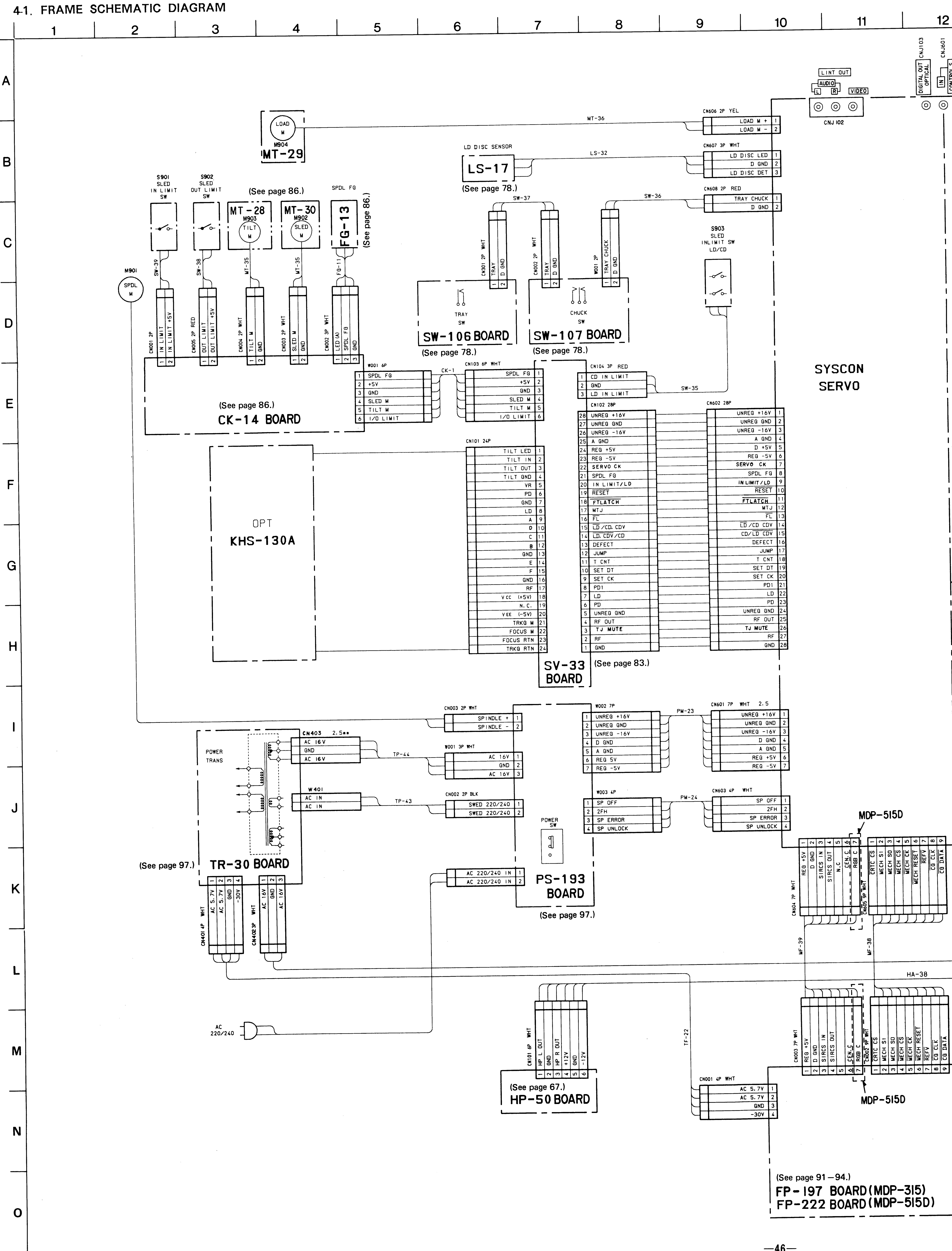

FP-222 BOARD(MODE CONTROL)(MDP-515D) (See page 93.)
FP-197 BOARD(MODE CONTROL)(MDP-315) (See page 91.)
S005 9
S004 6
S003 3
S002 2
S001 1
A/D0
S010 +10
S009 7
S008 8
S007 5
S006 4
A/D1
S015 0
S014 CDV
S013 AV TIME
S012 INDEX MODE
S011 FILE
A/D 2
S019
S018
I/ALL
S017
IC003 RESET
ND1
FLUORSCENT DISPLAY
IG
2G
10G
11G
a — e · f — t
41 40 32 31 29 25 · 23 9
Q002 BUFFER
Q001 BUFFER
IC001
17 27 19 18 16 1 · 80 77
IG 2G 10G 11G a — p · q — t
35 A/D0
36 A/D1
37 A/D2
38 A/D3
32 RST
31 EX TAL
56 MMI ACK
29 REF-V
IC001 MMI CONTROL
A/D4 39
A/D5 40
M.STOP 67
MMI CS 47
CG DATA 45
MECH SI 46
CRTC CS 48
CG CLK 44
MECH RST 55
SIRCS 62
SIDE REPEAT 50
IC002 MODE CONTROL
RST 32
X'TAL 30
EX'TAL 31
MMI ACK 11
REF-V 59
P/N 60
MECH SO 36
MECH CK 33
TV/DISC 42
MECH CS 43
CRTC CS 10
MECH SI 34
MMI CS 44
P/N
CN004
6 1 2 3 5
A/D3
A/D4
A/D5
M.STOP
(See page 92.)
FP-198 BOARD(FUNCTION SWITCH)(MDP-315)
FP-223 BOARD(FUNCTION SWITCH)(MDP-515D)
(See page 94.)
CN001
D001 PAL
D002 NTSC
S001
S002
S003 DUAL
S004 OPEN/CLOSE
S005
S006
S007
S008 DUAL
S009 STOP MODE
S016 ON OFF
IC004 INF AMP
M.STOP
2 SIRCS IN
CN003
5 3 4 6 7
SIRCS OUT
TV/DISC
RGB C
TO MP-15 BOARD CN604 (See page 31.)
+5V
S020 OFF ← ON
CN002
1 CRTC CS
2 MECH SI
3 MECH SO
4 MECH LS
5 MECH CK
6 MECH RST
7 REF-V
8 CG CLK
9 CG DATA
TO MP-15 BOARD CN605 (See page 31.)
IC005 3-STATE BUFFER
15 14 13 12 11

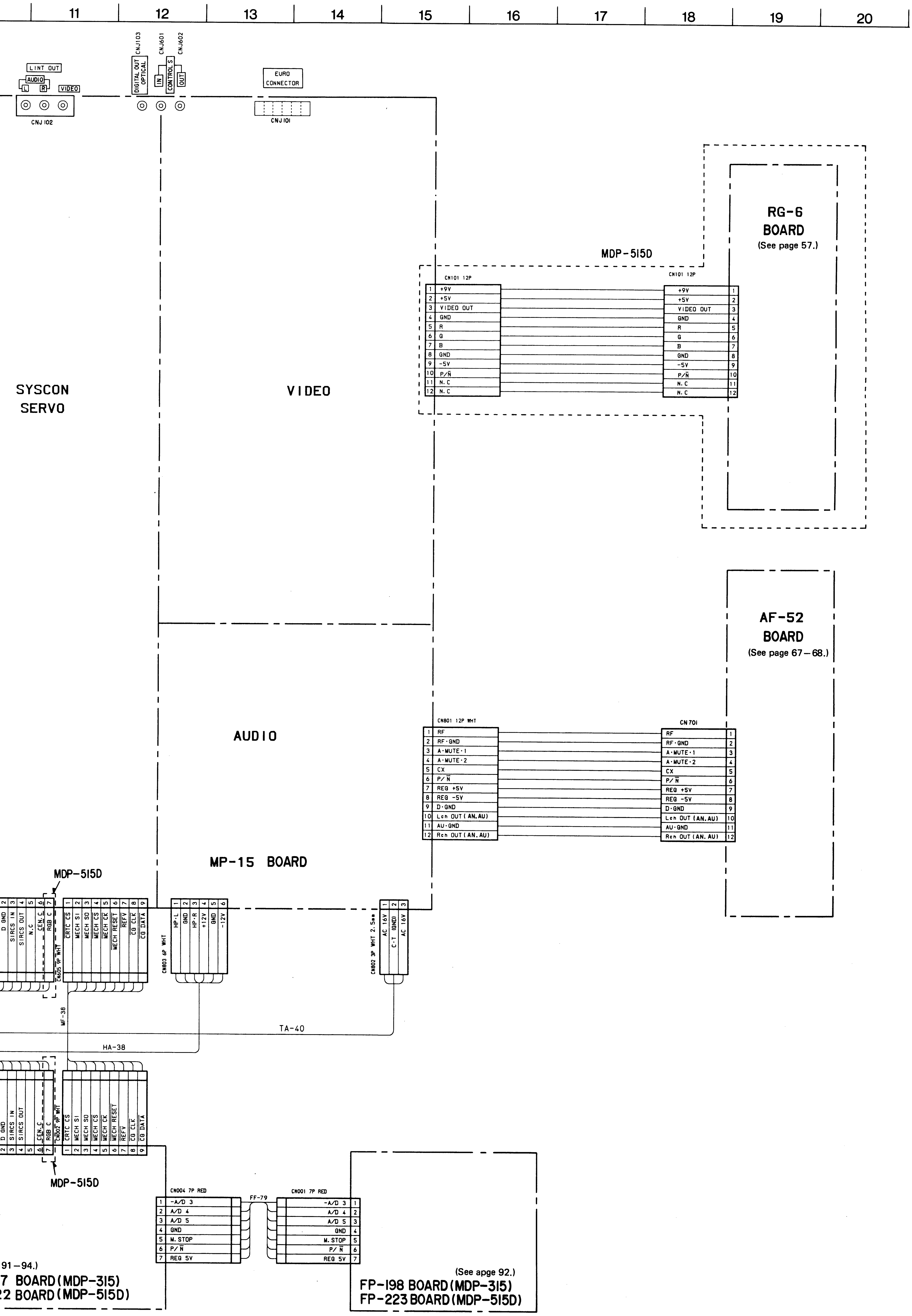
3-10. POWER BLOCK DIAGRAM


PS-193 BOARD(1/2) (POWER SUPPLY BLOCK)
(See page 97.)
TR-30 BOARD
(See page 97.)
POWER TRANSFORMER
AC.IN
CN001
AC.IN
AC.IN
F301
T301
C301
NOISE FILTER
POWER SWITCH
SWED 100V
SWED 100V
CN002
W401
CN403
D101
C101
C102
RECTFICATION
+16V
-16V
Q101-Q103
SWITCHING
FILTER
Q105
-5V OFF
SW REG CONTROL
IC101
IC102
-5V REG
HEAT SINK
CN006
TO MP-15 BOARD CN601
(See page 77.)
CN402
TO MP-15 BOARD CN802
(See page 65.)
CN401
TO FP-222 BOARD (MDP-515D) (See page 92.)
FP-197 BOARD (MDP-315) (See page 94.)
CN001
Q404
-30V REG

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
LOAD M
M904
MT-29
MT-36
CN606 2P YEL
LOAD M +
LOAD M -
LD DISC SENSOR
LS-17
(See page 78.)
LS-32
CN607 3P WHT
LD DISC LED
D GND
LD DISC DET
CN608 2P RED
TRAY CHUCK
D GND
SW-37
SW-36
S901 SLED IN LIMIT SW
S902 SLED OUT LIMIT SW
(See page 86.)
MT-28
M903
TILT M
MT-30
M902
SLED M
SPDL FG
FG-13
(See page 86.)
M901
SPDL M
SW-39
SW-38
MT-35
MT-35
FG-11
CN001 2P
IN LIMIT
IN LIMIT +5V
CN005 2P RED
OUT LIMIT
OUT LIMIT +5V
CN004 2P WHT
TILT M
GND
CN003 2P WHT
SLED M
GND
CN002 3P WHT
LED (A)
SPDL FG
GND
CN301 2P WHT
TRAY
D GND
CN002 2P WHT
TRAY
D GND
W001 2P
TRAY CHUCK
D GND
TRAY SW
CHUCK SW
SW-106 BOARD
(See page 78.)
SW-107 BOARD
(See page 78.)
S903 SLED INLIMIT SW LD/CD
W001 6P
SPDL FG
+5V
GND
SLED M
TILT M
I/O LIMIT
CK-1
CN103 6P WHT
SPDL FG
+5V
GND
SLED M
TILT M
I/O LIMIT
CN104 3P RED
CD IN LIMIT
GND
LD IN LIMIT
SW-35
(See page 86.)
CK-14 BOARD
SYSCON SERVO
LINT OUT
AUDIO
L
R
VIDEO
CNJ102
CNJ103
DIGITAL OUT OPTICAL
CNJ601
IN
CONTROL S
CN101 24P
TILT LED
TILT IN
TILT OUT
TILT GND
VR
PD
GND
LD
A
D
C
B
GND
E
F
GND
RF
VCC (+5V)
N.C.
VEE (-5V)
TRKG M
FOCUS M
FOCUS RTN
TRKG RTN
OPT KHS-130A
CN102 28P
UNREG +16V
UNREG GND
UNREG -16V
A GND
REG +5V
REG -5V
SERVO CK
SPDL FG
IN LIMIT/LD
RESET
FTLATCH
MTJ
FL
LD/CD, CDV
LD, CDV/CD
DEFECT
JUMP
T CNT
SET DT
SET CK
PD1
LD
PD
UNREG GND
RF OUT
TJ MUTE
RF
GND
CN602 28P
UNREG +16V
UNREG GND
UNREG -16V
A GND
D +5V
REG -5V
SERVO CK
SPDL FG
IN LIMIT/LD
RESET
FTLATCH
MTJ
FL
LD/CD CDV
CD/LD CDV
DEFECT
JUMP
T CNT
SET DT
SET CK
PD1
LD
PD
UNREG GND
RF OUT
TJ MUTE
RF
GND
SV-33 BOARD
(See page 83.)
CN003 2P WHT
SPINDLE +
SPINDLE -
W002 7P
UNREG +16V
UNREG GND
UNREG -16V
D GND
A GND
REG 5V
REG -5V
PM-23
CN601 7P WHT 2.5
UNREG +16V
UNREG GND
UNREG -16V
D GND
A GND
REG +5V
REG -5V
CN403 2.5mm
AC 16V
GND
AC 16V
POWER TRANS
TP-44
W001 3P WHT
AC 16V
GND
AC 16V
W401
AC IN
AC IN
TP-43
CN002 2P BLK
SWED 220/240
SWED 220/240
W003 4P
SP OFF
2FH
SP ERROR
SP UNLOCK
PM-24
CN603 4P WHT
SP OFF
2FH
SP ERROR
SP UNLOCK
POWER SW
(See page 97.)
TR-30 BOARD
AC 220/240 IN
AC 220/240 IN
PS-193 BOARD
(See page 97.)
MDP-515D
CN401 4P WHT
AC 5.7V
AC 5.7V
GND
-30V
CN402 3P WHT
AC 16V
GND
AC 16V
CN604 7P WHT
REG +5V
D GND
SIRCS IN
SIRCS OUT
N.C
CEN_C
RGB C
CN605 9P WHT
CRTC CS
MECH SI
MECH SO
MECH CS
MECH CK
MECH RESET
REFV
CG CLK
CG DATA
MF-39
MF-38
HA-38
AC 220/240
CN101 6P WHT
HP L OUT
GND
HP R OUT
+12V
GND
-12V
(See page 67.)
HP-50 BOARD
TF-22
CN003 7P WHT
REG +5V
D GND
SIRCS IN
SIRCS OUT
CEN_C
RGB C
CN002 9P WHT
CRTC CS
MECH SI
MECH SO
MECH CS
MECH CK
MECH RESET
REFV
CG CLK
CG DATA
CN001 4P WHT
AC 5.7V
AC 5.7V
GND
-30V
MDP-515D
(See page 91-94.)
FP-197 BOARD (MDP-315)
FP-222 BOARD (MDP-515D)


11
12
13
14
15
16
17
18
19
20
LINT OUT
AUDIO
L
R
VIDEO
CNJ 102
CNJ103
DIGITAL OUT OPTICAL
CNJ601
IN
CONTROL S
CNJ602
OUT
EURO CONNECTOR
CNJ101
RG-6 BOARD
(See page 57.)
MDP-515D
CN101 12P
1 +9V
2 +5V
3 VIDEO OUT
4 GND
5 R
6 G
7 B
8 GND
9 -5V
10 P/N̄
11 N.C
12 N.C
CN101 12P
+9V 1
+5V 2
VIDEO OUT 3
GND 4
R 5
G 6
B 7
GND 8
-5V 9
P/N̄ 10
N.C 11
N.C 12
SYSCON SERVO
VIDEO
AF-52 BOARD
(See page 67–68.)
AUDIO
CN801 12P WHT
1 RF
2 RF·GND
3 A·MUTE·1
4 A·MUTE·2
5 CX
6 P/N̄
7 REG +5V
8 REG -5V
9 D·GND
10 Lch OUT (AN.AU)
11 AU·GND
12 Rch OUT (AN.AU)
CN701
RF 1
RF·GND 2
A·MUTE·1 3
A·MUTE·2 4
CX 5
P/N̄ 6
REG +5V 7
REG -5V 8
D·GND 9
Lch OUT (AN.AU) 10
AU·GND 11
Rch OUT (AN.AU) 12
MP-15 BOARD
MDP-515D
2 D GND
3 SIRCS IN
4 SIRCS OUT
5 N.C
6 CEN.C
7 RGB C
CN605 9P WHT
1 CRTC CS
2 MECH SI
3 MECH SO
4 MECH CS
5 MECH CK
6 MECH RESET
7 REFV
8 CG CLK
9 CG DATA
CN803 6P WHT
1 HP·L
2 GND
3 HP·R
4 +12V
5 GND
6 -12V
CN802 3P WHT 2.5mm
1 AC 16V
2 C·T (GND)
3 AC 16V
MF-38
TA-40
HA-38
D GND
SIRCS IN
SIRCS OUT
CEN.C
RGB C
CN002 9P WHT
CRTC CS
MECH SI
MECH SO
MECH CS
MECH CK
MECH RESET
REFV
CG CLK
CG DATA
MDP-515D
CN004 7P RED
1 -A/D 3
2 A/D 4
3 A/D 5
4 GND
5 M.STOP
6 P/N̄
7 REG 5V
FF-79
CN001 7P RED
-A/D 3 1
A/D 4 2
A/D 5 3
GND 4
M.STOP 5
P/N̄ 6
REG 5V 7
91–94.)
7 BOARD (MDP-315)
22 BOARD (MDP-515D)
(See apge 92.)
FP-198 BOARD (MDP-315)
FP-223 BOARD (MDP-515D)
(See page 94.)

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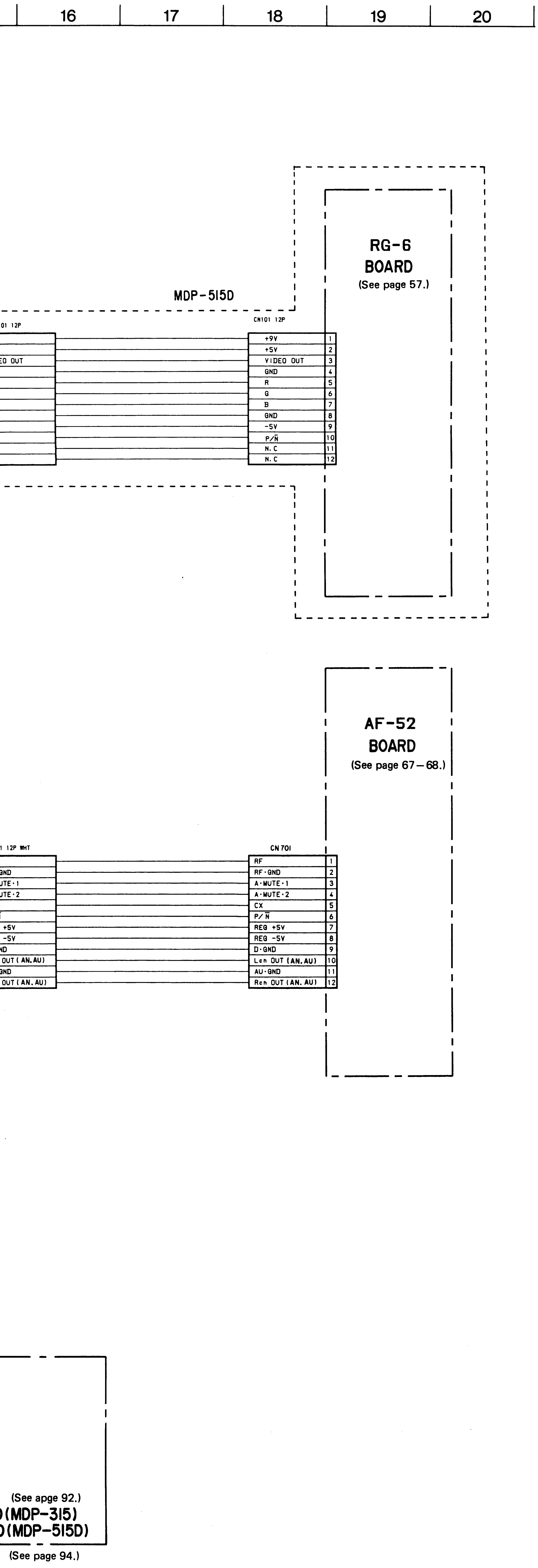

16
17
18
19
20
MDP-515D
RG-6
BOARD
(See page 57.)
01 12P
EO OUT
CN101 12P
+9V 1
+5V 2
VIDEO OUT 3
GND 4
R 5
G 6
B 7
GND 8
-5V 9
P/N̄ 10
N.C 11
N.C 12
AF-52
BOARD
(See page 67－68.)
1 12P WHT
GND
UTE·1
UTE·2
+5V
-5V
ND
OUT (AN.AU)
GND
OUT (AN.AU)
CN 701
RF 1
RF·GND 2
A·MUTE·1 3
A·MUTE·2 4
CX 5
P/N̄ 6
REG +5V 7
REG -5V 8
D·GND 9
Lch OUT (AN.AU) 10
AU·GND 11
Rch OUT (AN.AU) 12
(See apge 92.)
)(MDP-315)
)(MDP-515D)
(See page 94.)

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the nscessary note is printed in each block.)

For printed wiring boards :

- o— : indicates a lead wire mounted on the componet side.
- ● : Through hole..
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- ● Circled numbers refer to waveforms.

For schematic diagram :

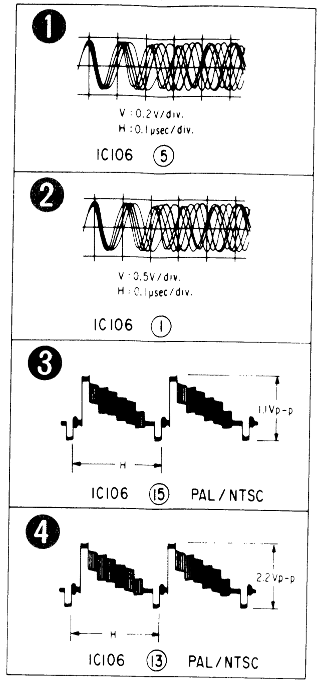
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, chip resistors are 1/10W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic carve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ∿ : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair.*
- ▬ : B+ line.*
- ▬ ▬ ▬ : B– line.*
- Voltages are dc between measurement points and ground unless otherwise noted.*
- Readings are taken with a color-bar signal playback.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- ⇨ : IN/OUT direction of B line (+, –).*
- Readings are taken with color-bar signal playback.
- Circled numbers refer to waveforms.*

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

*: indicated by the color red.

MP-15 BOARD (VIDEO)



For printed wiring boards :

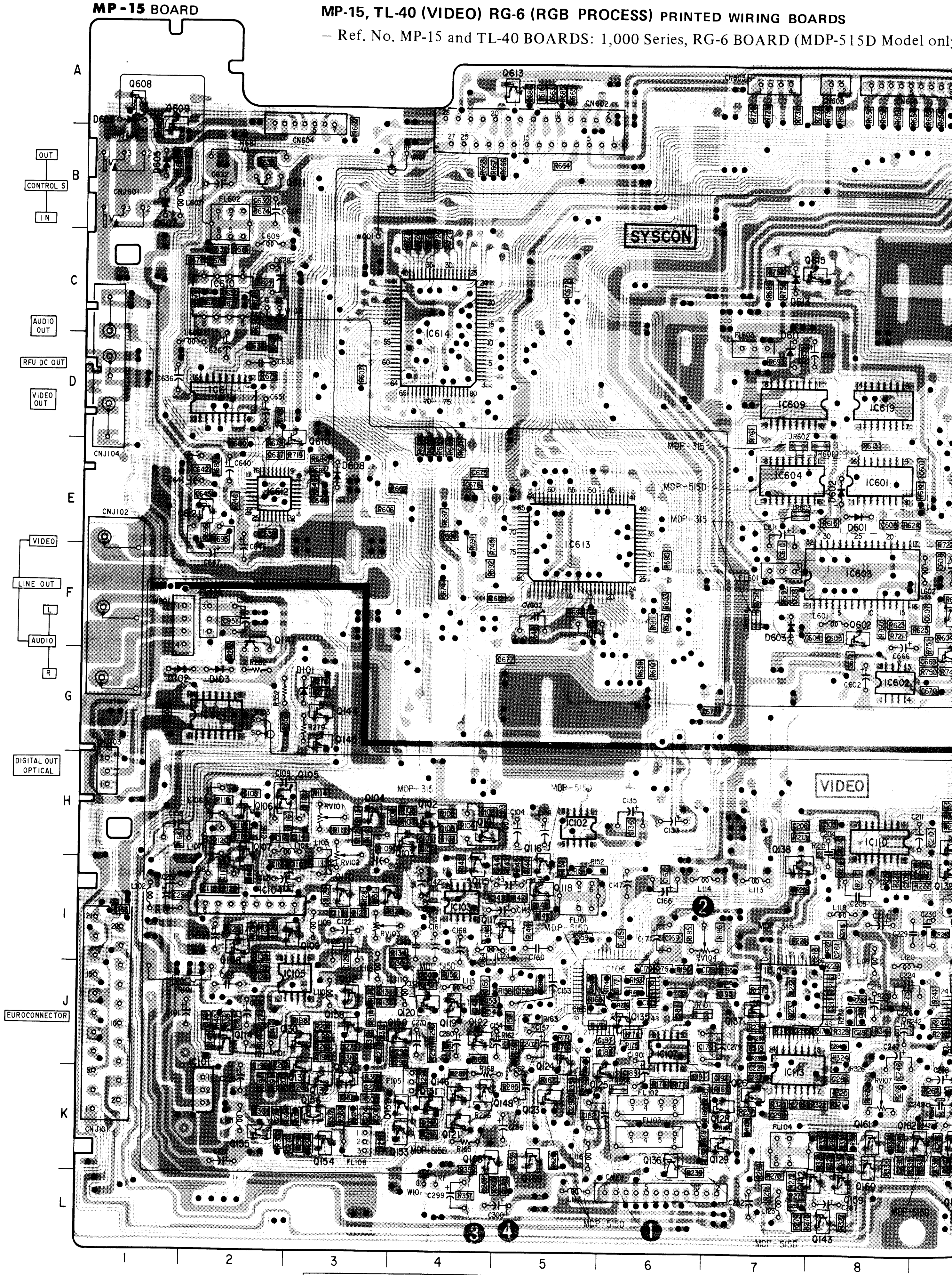
- o—— : indicates a lead wire mounted on the componet side.
- ▨ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- ● Circled numbers refer to waveforms.
- Jumper wire connected to the ground pattern on the component side.
- o—●—o : Jumper wire connected to the pattern on the component side.

MP-15 BOARD

D101	G-3
D102	G-1
D103	G-2
D104	I-9
D105	I-9
D601	E-8
D602	E-8
D603	F-7
D604	C-13
D605	B-1
D606	A-1
D607	B-1
D608	E-3
D609	C-15
D610	C-15
D611	D-7
D612	C-15
D613	C-7
D801	G-14
D802	H-12
D803	H-13
D804	G-11
D805	F-12
D806	I-14
D807	I-14
D808	I-15
D811	I-14
D812	I-15
D813	I-15
D815	J-14
D820	L-15
D821	L-15
D822	K-15
D823	L-15
D903	F-13
D910	K-15
D911	K-15
IC101	K-2
IC102	H-5
IC103	I-4
IC104	I-2
IC105	J-3
IC106	J-6
IC107	J-6
IC108	L-10
IC109	J-8
IC110	H-8
IC111	J-10
IC113	J-7
IC601	D-8
IC602	G-8
IC603	F-8
IC604	E-7
IC605	D-15
IC606	D-15
IC607	E-15
IC608	D-14
IC609	D-7
IC610	C-2
IC611	D-2
IC612	E-2
IC613	E-5
IC614	C-4
IC615	B-14
IC616	B-13
IC617	B-15
IC618	A-10
IC619	D-8
IC620	C-15
IC621	E-14
IC801	G-14
IC802	G-15
IC803	G-14
IC805	G-13
IC809	H-15
IC811	F-12
IC812	G-12
IC813	H-12
IC814	J-15
IC816	J-12
IC817	I-11
IC818	K-11
IC819	J-13
IC820	K-13
IC821	J-15
IC822	K-15
IC823	K-14
IC824	G-2
Q102	H-4
Q103	H-4
Q104	H-3
Q105	H-2
Q106	H-2
Q107	H-2
Q108	I-2
Q109	I-3
Q110	I-3
Q111	I-3
Q112	J-3
Q114	J-2
Q115	I-4
Q116	I-5
Q117	I-5
Q118	I-5
Q119	J-4
Q120	J-4
Q121	K-4
Q122	J-4
Q123	K-5
Q124	J-5
Q125	K-6
Q126	K-7
Q128	K-7
Q129	K-7
Q130	J-3
Q131	J-3
Q132	K-3
Q133	L-9
Q134	K-10
Q135	J-6
Q136	K-6
Q137	J-6
Q138	H-7
Q139	I-9
Q140	H-9
Q141	I-9
Q142	L-8
Q143	L-8
Q144	G-3
Q145	G-3
Q146	K-4
Q147	F-2
Q148	K-4
Q150	J-4
Q151	K-4
Q152	K-4
Q153	K-4
Q154	K-3
Q155	K-2
Q156	K-3
Q157	K-3
Q158	J-3
Q159	L-8
Q160	K-8
Q161	K-8
Q162	K-9
Q163	K-9
Q164	J-10
Q165	J-9
Q166	J-10
Q167	J-9
Q168	K-4
Q169	K-5
Q601	F-9
Q602	F-8
Q603	E-15
Q604	D-13
Q605	D-13
Q606	E-13
Q607	D-13
Q608	A-1
Q609	A-1
Q610	D-3
Q611	B-2
Q612	E-2
Q613	A-5
Q614	F-9
Q615	C-7
Q618	A-13
Q801	H-15
Q802	H-15
Q803	H-15
Q804	H-14
Q806	I-15
Q807	I-14
Q808	I-14
Q809	I-14
Q810	I-14
Q811	I-14
Q812	J-14
Q813	K-14
Q814	I-15
Q815	H-11

MP-15, TL-40 (VIDEO) RG-6 (RGB PROCESS) PRINTED WIRING BOARDS

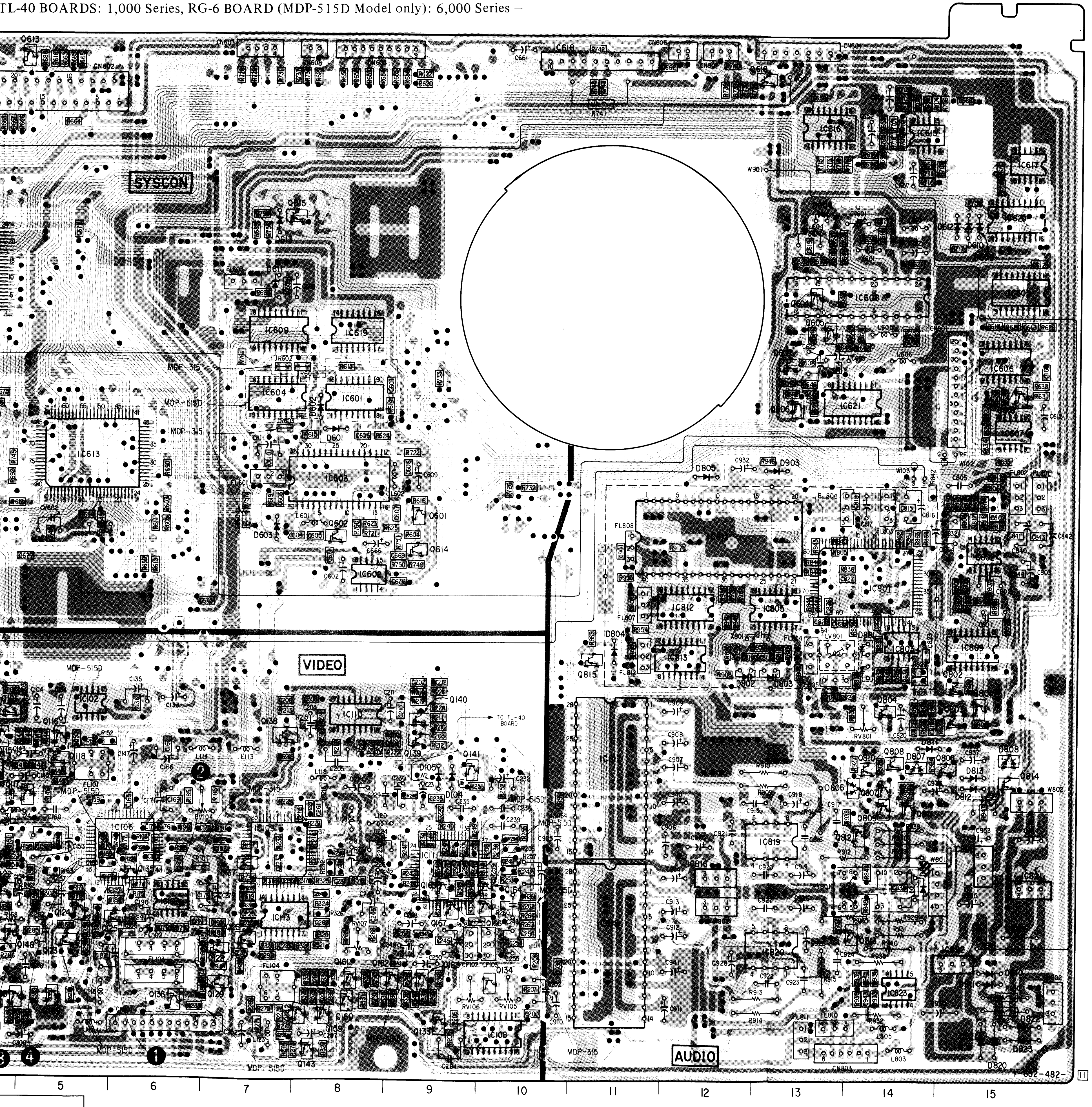
– Ref. No. MP-15 and TL-40 BOARDS: 1,000 Series, RG-6 BOARD (MDP-515D Model onl


MP-15 BOARD
A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
7
8
OUT
CONTROL S
IN
AUDIO OUT
RFU DC OUT
VIDEO OUT
VIDEO
LINE OUT
L
AUDIO
R
DIGITAL OUT OPTICAL
EUROCONNECTOR
CNJ104
CNJ102
CNJ601
SYSCON
VIDEO
MDP-315
MDP-515D
IC614
IC613
IC609
IC619
IC604
IC601
IC603
IC602
IC610
IC611
IC612
IC102
IC103
IC105
IC106
IC110
IC113
CN604
CN602
❶
❷
❸
❹

VIDEO VIDEO

) RG-6 (RGB PROCESS) PRINTED WIRING BOARDS

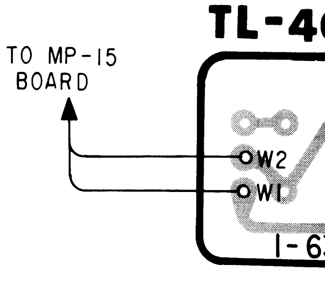
TL-40 BOARDS: 1,000 Series, RG-6 BOARD (MDP-515D Model only): 6,000 Series –


SYSCON
VIDEO
AUDIO
MDP-315
MDP-515D
TO TL-40 BOARD
1-632-482-11
5
6
7
8
9
10
11
12
13
14
15

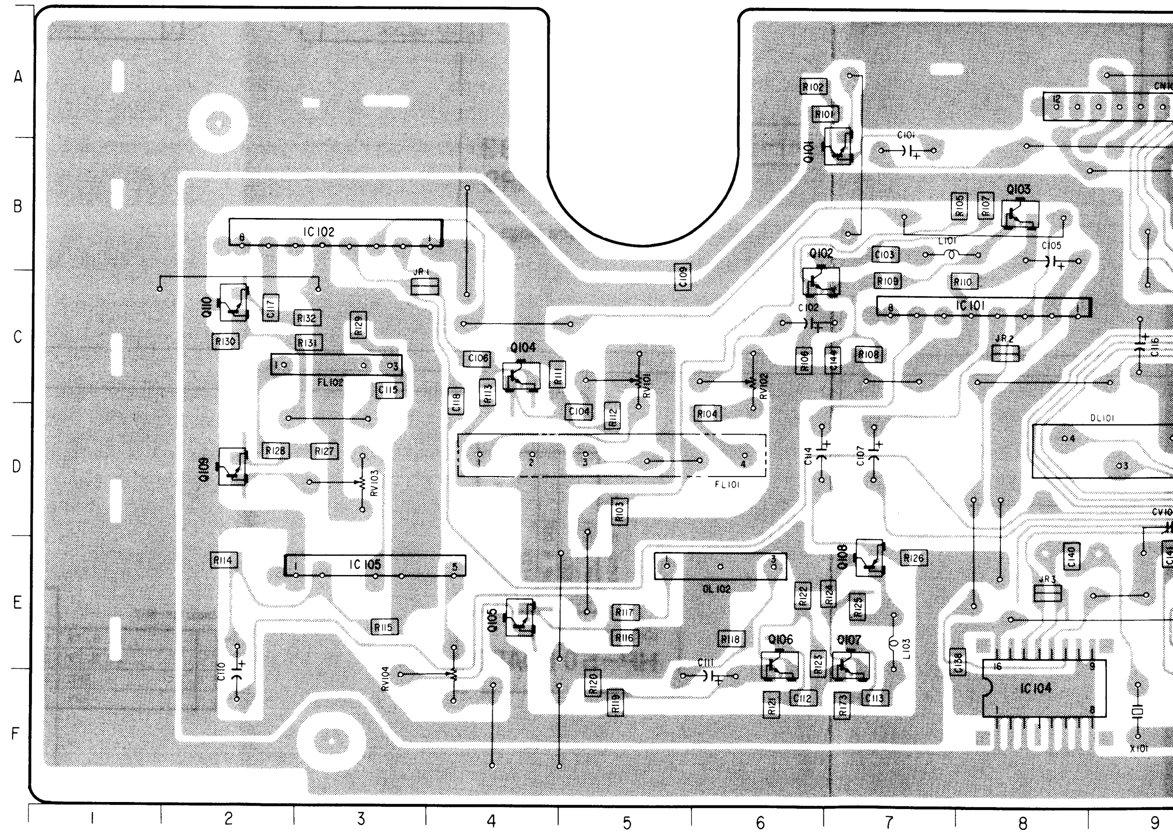
RG-6 BOARD

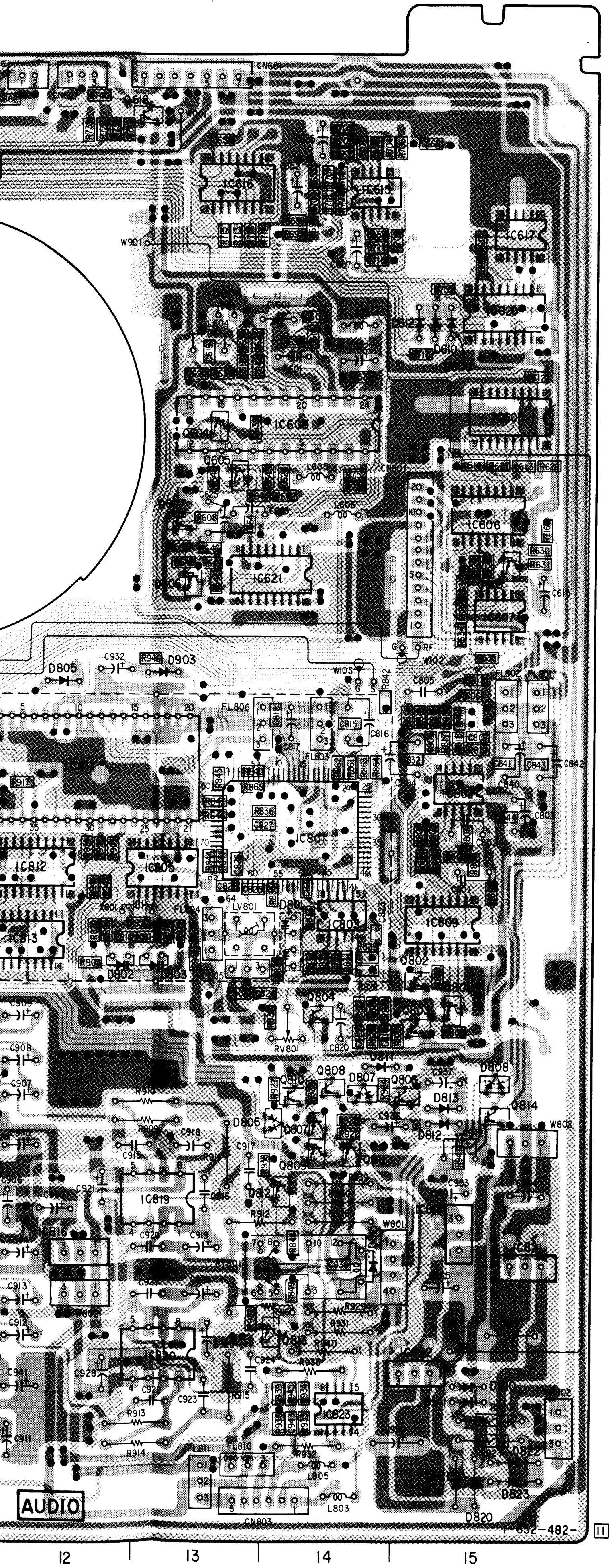
D101	D-14	Q107	E-7
D102	D-13	Q108	E-7
D103	E-15	Q109	D-2
D104	F-15	Q110	C-2
		Q111	D-11
IC101	C-8	Q112	D-12
IC102	B-3	Q113	B-9
IC103	E-11	Q114	B-14
IC104	F-8	Q115	C-13
IC105	E-3	Q116	C-13
		Q117	B-13
Q101	B-7	Q118	B-12
Q102	C-6	Q119	B-12
Q103	B-8	Q120	A-13
Q104	C-4	Q121	B-12
Q105	E-4	Q122	B-11
Q106	E-6	Q123	B-10

TL-40


TO MP-15 BOARD
W2
W1

RG-6 BOARD

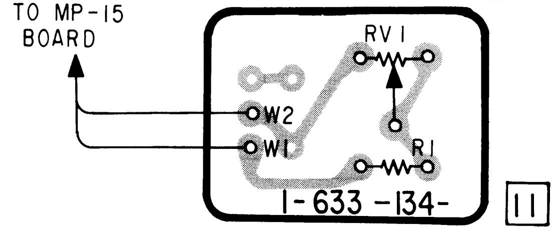

A
B
C
D
E
F
1
2
3
4
5
6
7
8
9
IC101
IC102
IC104
IC105
FL101
FL102
DL101
DL102


AUDIO
1-632-482-
11
12
13
14
15

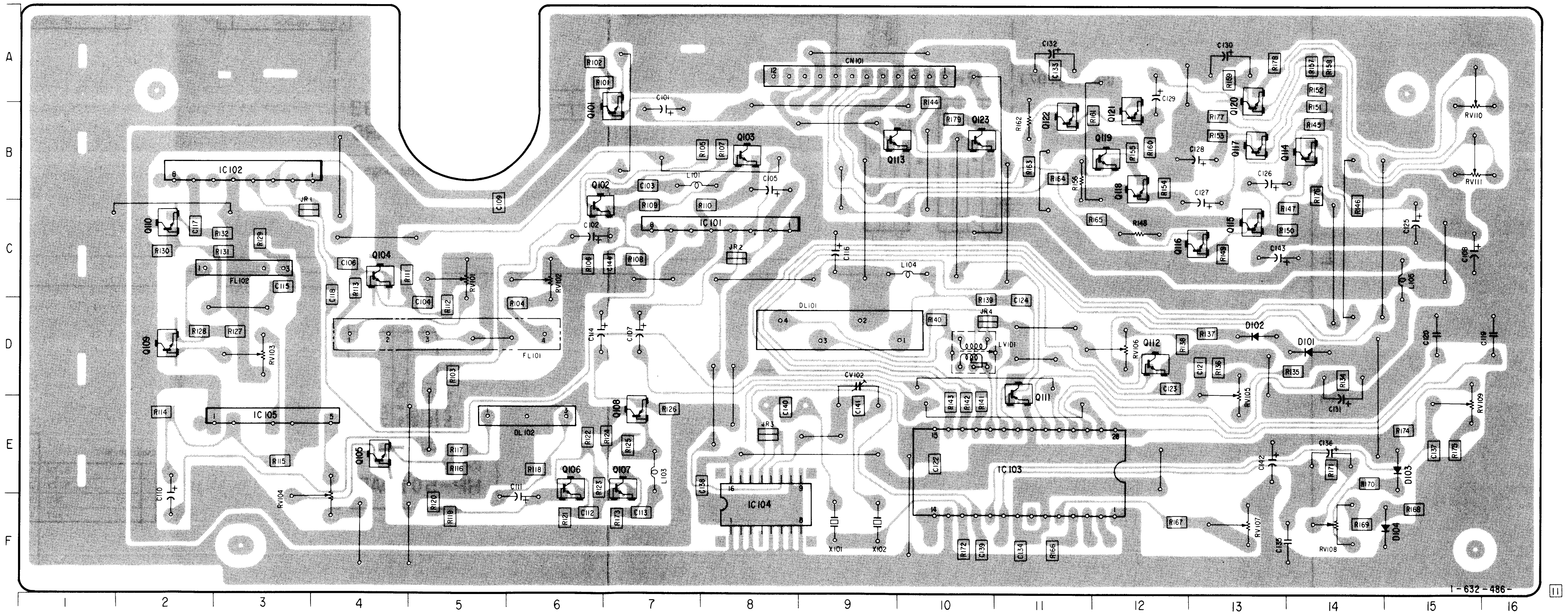
RG-6 BOARD

D101	D-14	Q107	E-7
D102	D-13	Q108	E-7
D103	E-15	Q109	D-2
D104	F-15	Q110	C-2
		Q111	D-11
IC101	C-8	Q112	D-12
IC102	B-3	Q113	B-9
IC103	E-11	Q114	B-14
IC104	F-8	Q115	C-13
IC105	E-3	Q116	C-13
		Q117	B-13
Q101	B-7	Q118	B-12
Q102	C-6	Q119	B-12
Q103	B-8	Q120	A-13
Q104	C-4	Q121	B-12
Q105	E-4	Q122	B-11
Q106	E-6	Q123	B-10

TL-40 BOARD


TO MP-15
BOARD
RV1
W2
W1
R1
1-633-134-
11

RG-6 BOARD


A
B
C
D
E
F
1
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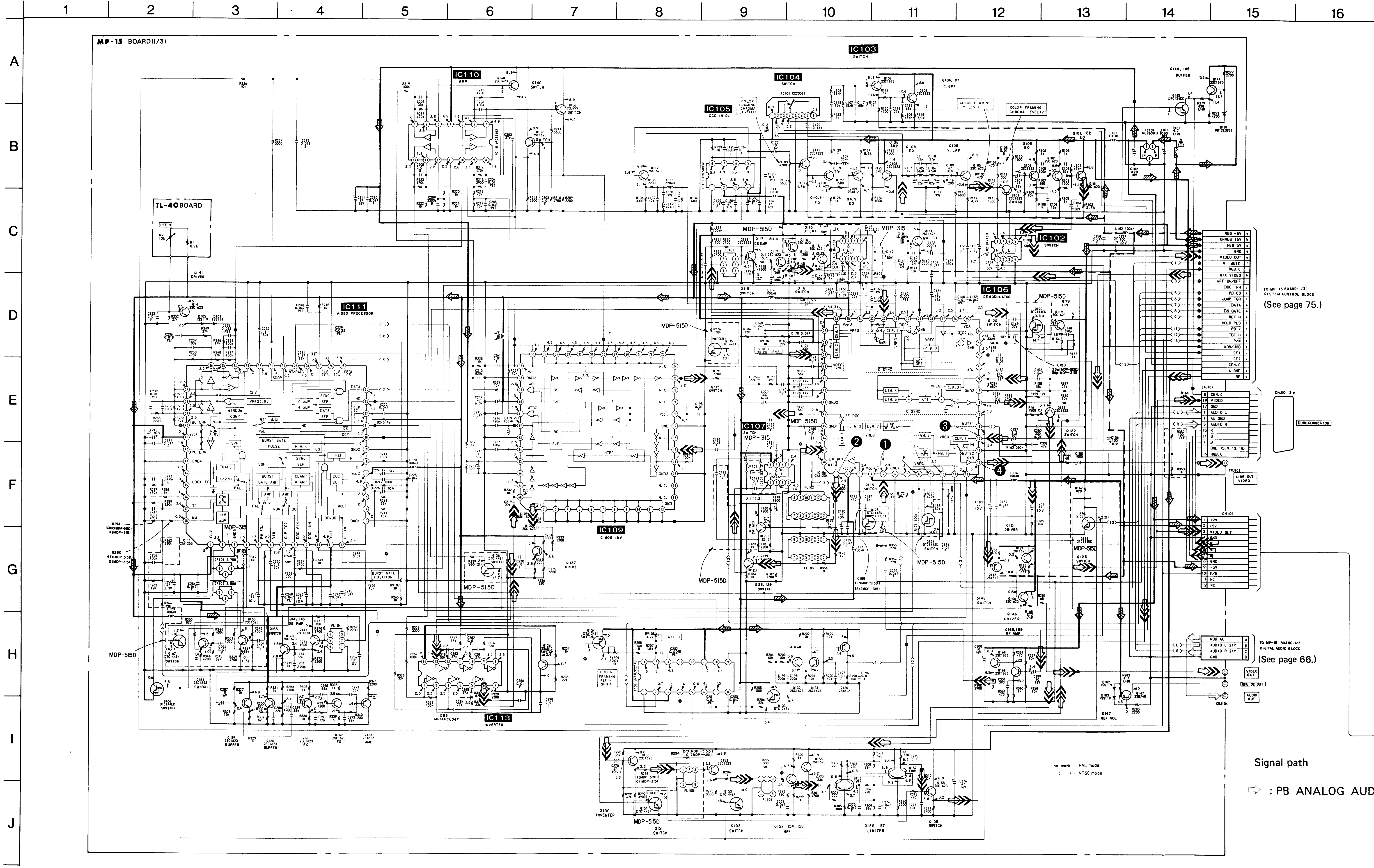
6
7
8
9
10
11
12
13
14
15
16
CN101
IC101
IC102
IC103
IC104
IC105
DL101
FL101
FL102
1-632-486-
11

MP-15 (1/3), TL-40 (VIDEO), RG-6 (RGB PROCESS) (MDP-515D Model only) SCHEMATIC DIAGRAMS

– Ref. No. MP-15 and TL-40 BOARDS: 1,000 Series, RG-16 BOARD: 6,000 Series –



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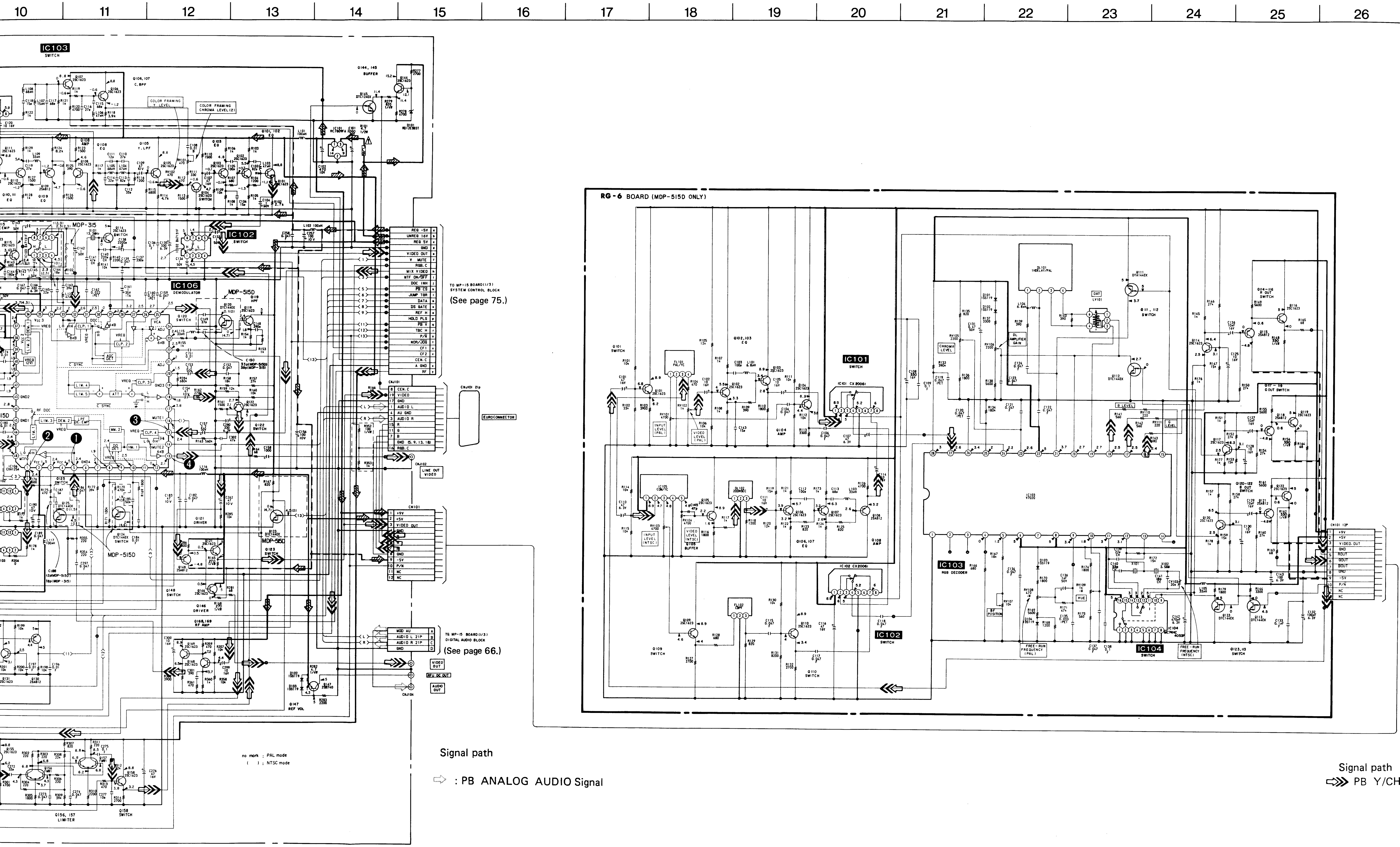
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
MP-15 BOARD(1/3)
TL-40 BOARD
IC110 AMP
IC103 SWITCH
IC104 SWITCH
IC105 CCD 1H DL
IC102 SWITCH
IC106 DEMODULATOR
IC111 VIDEO PROCESSOR
IC109 C MOS INV
IC107 SWITCH
IC113 INVERTER
MDP-515D
MDP-315
COLOR FRAMING Y LEVEL
COLOR FRAMING CHROMA LEVEL(2)
REG -5V
UNREG 16V
REG 5V
GND
VIDEO OUT
V MUTE
RGB.C
MIX VIDEO
MTF ON/OFF
DOC INH
PB CS
JUMP TGR
DATA
DS GATE
REF H
HOLD PLS
PB V
TBC H
P/N
NOR/JOG
CF1
CF2
CEN.C
A GND
RF
TO MP-15 BOARD(1/3) SYSTEM CONTROL BLOCK
(See page 75.)
CNJ101 21p
EUROCONNECTOR
LINE OUT VIDEO
TO MP-15 BOARD(1/3) DIGITAL AUDIO BLOCK
(See page 66.)
VIDEO OUT
RFU DC OUT
AUDIO OUT
no mark : PAL mode
( ) : NTSC mode

Signal path

⇨ : PB ANALOG AUD

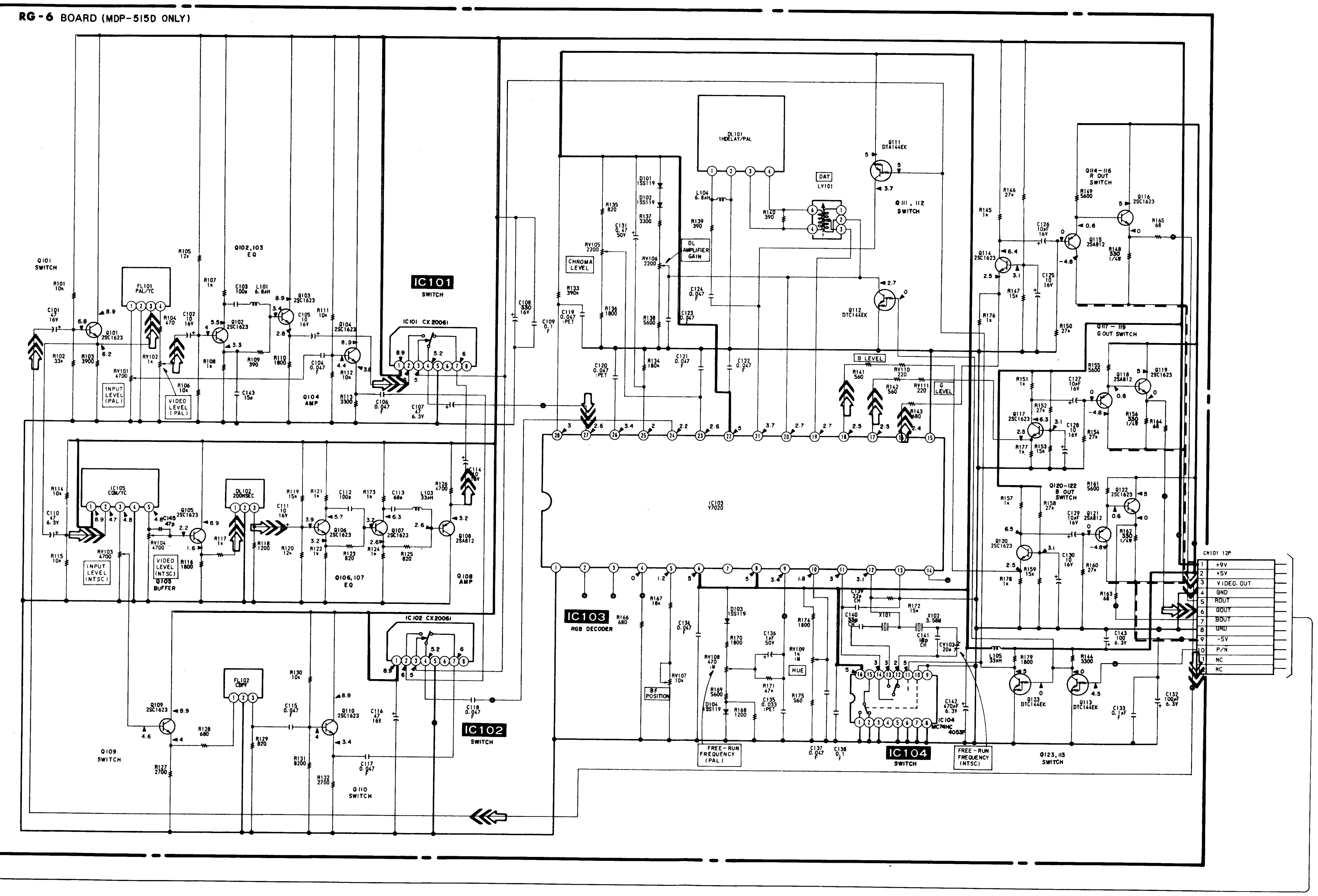

10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
IC103
SWITCH
Q106, 107
C.BPF
COLOR FRAMING Y LEVEL
COLOR FRAMING CHROMA LEVEL (2)
Q144, 145
BUFFER
Q101, 102
EQ
Q103
EQ
Q105
Y.LPF
Q108
AMP
Q110, 111
EQ
Q109
EQ
MDP-315
IC102
SWITCH
IC106
DEMODULATOR
MDP-515D
Q119
HPF
Q120
SWITCH
Q121
DRIVER
Q122
SWITCH
Q123
SWITCH
Q125
SWITCH
Q146
DRIVER
Q148
SWITCH
Q168, 169
RF AMP
Q147
REF VOL
Q156, 157
LIMITER
Q158
SWITCH
C SYNC
REG -5V
UNREG 16V
REG 5V
GND
VIDEO OUT
V. MUTE
RGB. C
MIX VIDEO
MTF ON/OFF
DOC INH
PB CS
JUMP TBR
DATA
DS GATE
REF H
HOLD PLS
PB Y
TBC H
P/N
NOR/JOG
CF1
CF2
CEN. C
A GND
RF
TO MP-15 BOARD (1/3) SYSTEM CONTROL BLOCK
(See page 75.)
CNJ101
CEN. C
VIDEO
GND
AUDIO L
AU GND
AUDIO R
R
G
B
GND (5, 9, 13, 18)
RGB. C
CNJ101 21p
EUROCONNECTOR
CNJ102
LINE OUT VIDEO
CN101
+9V
+5V
VIDEO OUT
GND
-5V
P/N
NC
MOD AU
AUDIO L 21P
AUDIO R 21P
GND
TO MP-15 BOARD (1/3) DIGITAL AUDIO BLOCK
(See page 66.)
VIDEO OUT
RFU DC OUT
AUDIO OUT
CNJ104
no mark : PAL mode
( ) : NTSC mode
RG-6 BOARD (MDP-515D ONLY)
Q101
SWITCH
INPUT LEVEL (PAL)
VIDEO LEVEL (PAL)
FL101
PAL/YC
Q102, 103
EQ
Q104
AMP
IC101
SWITCH
IC101 CX20061
DL101
1HDELAY/PAL
CHROMA LEVEL
DL AMPLIFIER GAIN
Q111
DTC144EK
Q111, 112
SWITCH
Q114-116
R OUT
SWITCH
Q117-119
G OUT SWITCH
B LEVEL
G LEVEL
IC105
COM/YC
INPUT LEVEL (NTSC)
VIDEO LEVEL (NTSC)
Q105
BUFFER
DL102
200NSEC
Q106, 107
EQ
Q108
AMP
IC103
Y7020
RGB DECODER
IC102 CX20061
IC102
SWITCH
FL102
CBPF
Q109
SWITCH
Q110
SWITCH
B-Y POSITION
HUE
FREE-RUN FREQUENCY (PAL)
IC104
SWITCH
FREE-RUN FREQUENCY (NTSC)
Q120-122
B OUT
SWITCH
Q123, 113
SWITCH
CN101 12P
+9V
+5V
VIDEO. OUT
GND
ROUT
GOUT
BOUT
GND
-5V
P/N
NC
NC

Signal path

⇨ : PB ANALOG AUDIO Signal

Signal path

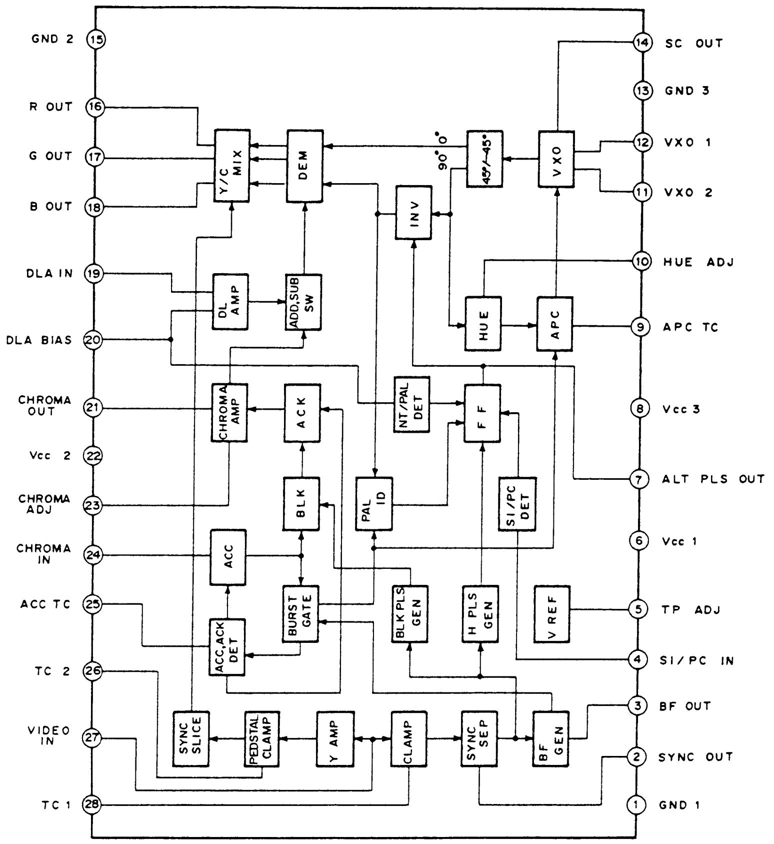
⇨ PB Y/CH


RG-6 BOARD (MDP-515D ONLY)
IC101
SWITCH
IC101 CX20061
IC102 CX20061
IC102
SWITCH
IC103
RGB DECODER
IC104
SWITCH
IC105 CDL/TC
Q101 SWITCH
Q102,103 EQ
Q104 AMP
Q105 BUFFER
Q106,107 EQ
Q108 AMP
Q109 SWITCH
Q110 SWITCH
Q111, 112 SWITCH
Q114-116 R OUT SWITCH
Q117-119 G OUT SWITCH
Q120-122 B OUT SWITCH
Q123,113 SWITCH
FL101 PAL/TC
FL102 CBPF
DL101 1HDELAY/PAL
DL102 200NSEC
INPUT LEVEL (PAL)
VIDEO LEVEL (PAL)
INPUT LEVEL (NTSC)
VIDEO LEVEL (NTSC)
CHROMA LEVEL
DL AMPLIFIER GAIN
B LEVEL
G LEVEL
HUE
BF POSITION
FREE-RUN FREQUENCY (PAL)
FREE-RUN FREQUENCY (NTSC)
CN101 12P
+9V
+5V
VIDEO OUT
GND
R OUT
G OUT
B OUT
GND
-5V
P/N
NC
NC

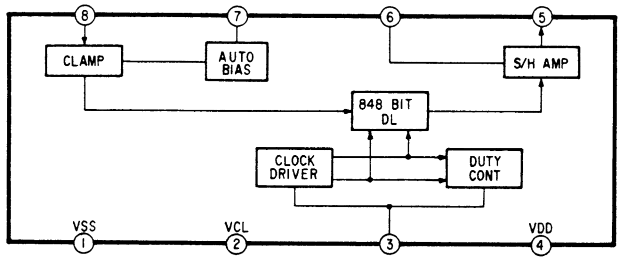
nal

Signal path
⇨ PB Y/CHROMA Signal

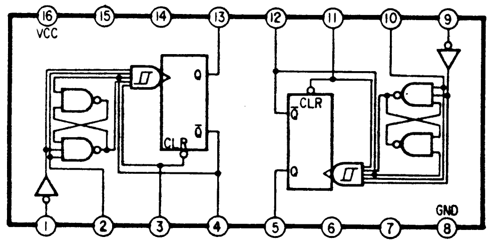
IC103 V7020


GND 2 15
R OUT 16
G OUT 17
B OUT 18
DLA IN 19
DLA BIAS 20
CHROMA OUT 21
Vcc 2 22
CHROMA ADJ 23
CHROMA IN 24
ACC TC 25
TC 2 26
VIDEO IN 27
TC 1 28
14 SC OUT
13 GND 3
12 VXO 1
11 VXO 2
10 HUE ADJ
9 APC TC
8 Vcc 3
7 ALT PLS OUT
6 Vcc 1
5 TP ADJ
4 SI/PC IN
3 BF OUT
2 SYNC OUT
1 GND 1
Y/C MIX
DEM
90° 0°
45°/-45°
VXO
INV
DL AMP
ADD,SUB SW
HUE
APC
CHROMA AMP
ACK
NT/PAL DET
F F
BLK
PAL ID
SI/PC DET
ACC
BURST GATE
BLK PLS GEN
H PLS GEN
V REF
ACC,ACK DET
SYNC SLICE
PEDSTAL CLAMP
Y AMP
CLAMP
SYNC SEP
BF GEN

IC105 CXL5003M


8
7
6
5
CLAMP
AUTO BIAS
S/H AMP
848 BIT DL
CLOCK DRIVER
DUTY CONT
VSS 1
VCL 2
3
VDD 4

IC108 SN74LS221NS


16 VCC
15
14
13
12
11
10
9
CLR
CLR
1
2
3
4
5
6
7
GND 8

VIDEO VIDEO

MP-15 BOARD

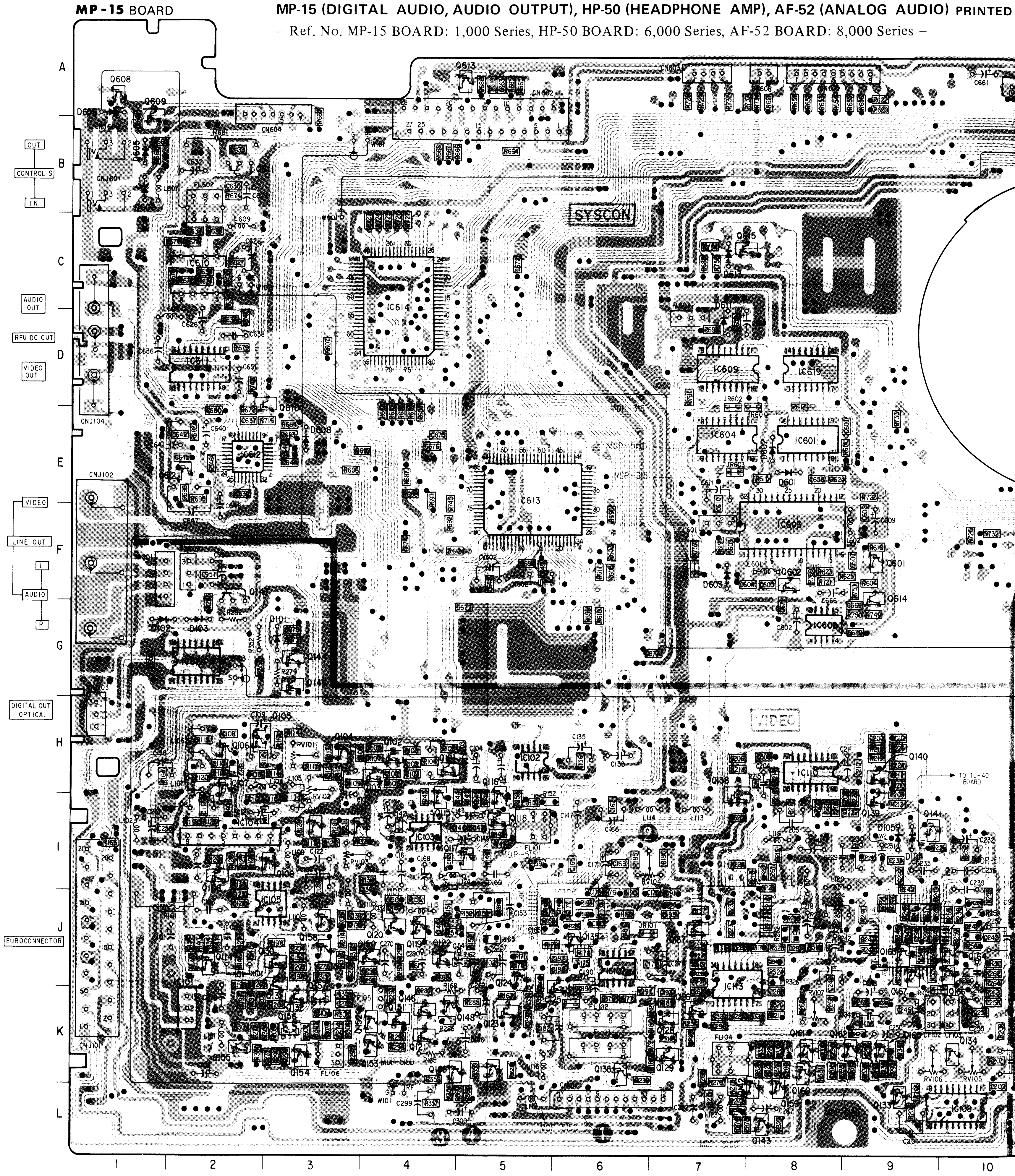
D101	G-3
D102	G-1
D103	G-2
D104	I-9
D105	I-9
D601	E-8
D602	E-8
D603	F-7
D604	C-13
D605	B-1
D606	A-1
D607	B-1
D608	E-3
D609	C-15
D610	C-15
D611	D-7
D612	C-15
D613	C-7
D801	G-14
D802	H-12
D803	H-13
D804	G-11
D805	F-12
D806	I-14
D807	I-14
D808	I-15
D811	I-14
D812	I-15
D813	I-15
D815	J-14
D820	L-15
D821	L-15
D822	K-15
D823	L-15
D903	F-13
D910	K-15
D911	K-15
IC101	K-2
IC102	H-5
IC103	I-4
IC104	I-2
IC105	J-3
IC106	J-6
IC107	J-6
IC108	L-10
IC109	J-8
IC110	H-8
IC111	J-10
IC113	J-7
IC601	D-8
IC602	G-8
IC603	F-8
IC604	E-7
IC605	D-15
IC606	D-15
IC607	E-15
IC608	D-14
IC609	D-7
IC610	C-2
IC611	D-2
IC612	E-2
IC613	E-5
IC614	C-4
IC615	B-14
IC616	B-13
IC617	B-15
IC618	A-10
IC619	D-8
IC620	C-15
IC621	E-14
IC801	G-14
IC802	G-15
IC803	G-14
IC805	G-13
IC809	H-15
IC811	F-12
IC812	G-12
IC813	H-12
IC814	J-15
IC816	J-12
IC817	I-11
IC818	K-11
IC819	J-13
IC820	K-13
IC821	J-15
IC822	K-15
IC823	K-14
IC824	G-2
Q102	H-4
Q103	H-4
Q104	H-3
Q105	H-2
Q106	H-2
Q107	H-2
Q108	I-2
Q109	I-3
Q110	I-3
Q111	I-3
Q112	J-3
Q114	J-2
Q115	I-4
Q116	I-5
Q117	I-5
Q118	I-5
Q119	J-4
Q120	J-4
Q121	K-4
Q122	J-4
Q123	K-5
Q124	J-5
Q125	K-6
Q126	K-7
Q128	K-7
Q129	K-7
Q130	J-3
Q131	J-3
Q132	K-3
Q133	L-9
Q134	K-10
Q135	J-6
Q136	K-6
Q137	J-6
Q138	H-7
Q139	I-9
Q140	H-9
Q141	I-9
Q142	L-8
Q143	L-8
Q144	G-3
Q145	G-3
Q146	K-4
Q147	F-2
Q148	K-4
Q150	J-4
Q151	K-4
Q152	K-4
Q153	K-4
Q154	K-3
Q155	K-2
Q156	K-3
Q157	K-3
Q158	J-3
Q159	L-8
Q160	K-8
Q161	K-8
Q162	K-9
Q163	K-9
Q164	J-10
Q165	J-9
Q166	J-10
Q167	J-9
Q168	K-4
Q169	K-5
Q601	F-9
Q602	F-8
Q603	E-15
Q604	D-13
Q605	D-13
Q606	E-13
Q607	D-13
Q608	A-1
Q609	A-1
Q610	D-3
Q611	B-2
Q612	E-2
Q613	A-5
Q614	F-9
Q615	C-7
Q618	A-13
Q801	H-15
Q802	H-15
Q803	H-15
Q804	H-14
Q806	I-15
Q807	I-14
Q808	I-14
Q809	I-14
Q810	I-14
Q811	I-14
Q812	J-14
Q813	K-14
Q814	I-15
Q815	H-11

For printed wiring boards :

- o—— : indicates a lead wire mounted on the componet side.
- ▒ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- ● Circled numbers refer to waveforms.
- o—●—o : Jumper wire connected to the ground pattern on the component side.
- o—●—o : Jumper wire connected to the pattern on the component side.

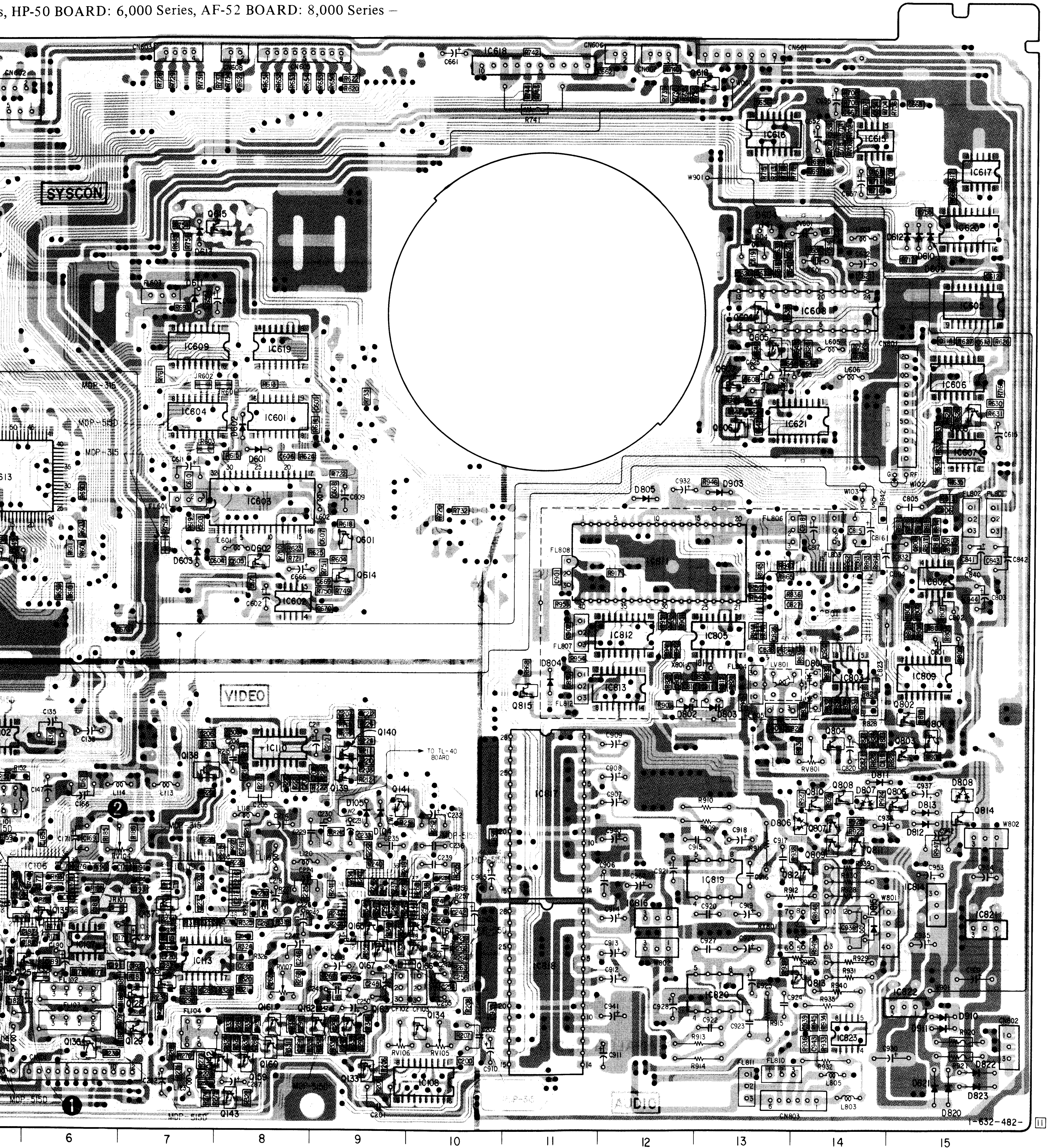
MP-15 (DIGITAL AUDIO, AUDIO OUTPUT), HP-50 (HEADPHONE AMP), AF-52 (ANALOG AUDIO) PRINTED

– Ref. No. MP-15 BOARD: 1,000 Series, HP-50 BOARD: 6,000 Series, AF-52 BOARD: 8,000 Series –


MP-15 BOARD
A
B
C
D
E
F
G
H
I
J
K
L
OUT
CONTROL S
IN
CNJ601
AUDIO OUT
RFU DC OUT
VIDEO OUT
CNJ104
CNJ102
VIDEO
LINE OUT
L
AUDIO
R
DIGITAL OUT OPTICAL
EUROCONNECTOR
CNJ101
SYSCON
IC614
IC613
IC609
IC619
IC604
IC601
IC603
IC602
IC610
IC611
IC612
VIDEO
IC110
IC102
IC103
IC104
IC105
IC113
IC108
Q140
TO TL-40 BOARD
1
2
3
4
5
6
7
8
9
10

UTPUT), HP-50 (HEADPHONE AMP), AF-52 (ANALOG AUDIO) PRINTED WIRING BOARDS

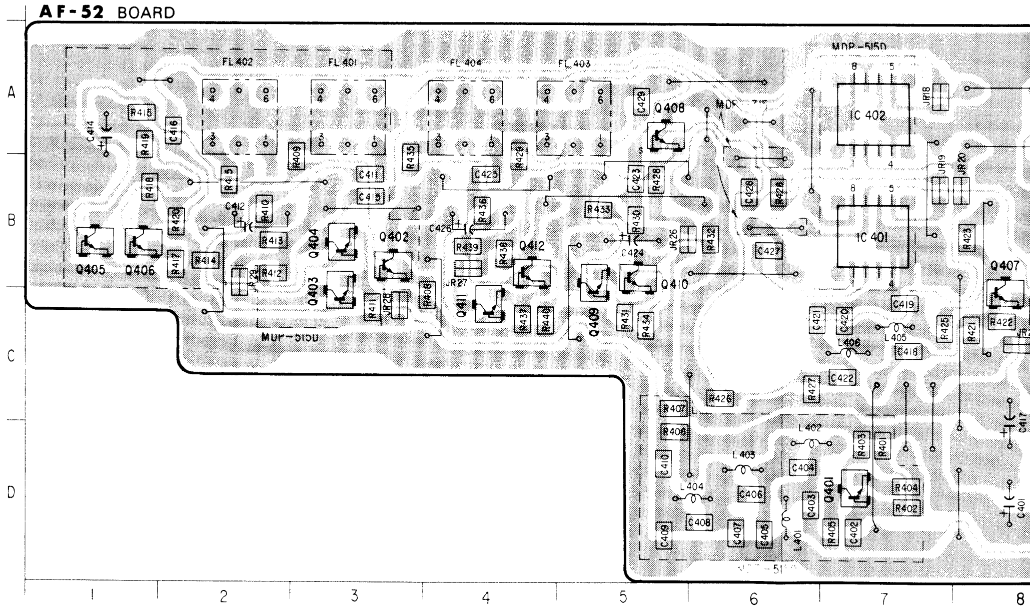
s, HP-50 BOARD: 6,000 Series, AF-52 BOARD: 8,000 Series –


SYSCON
VIDEO
AUDIO
TO TL-40 BOARD
1-632-482-11
6
7
8
9
10
11
12
13
14
15

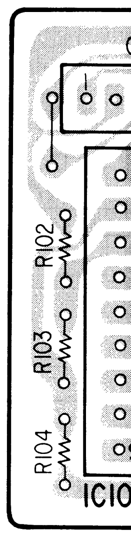
AF-52 BOARD

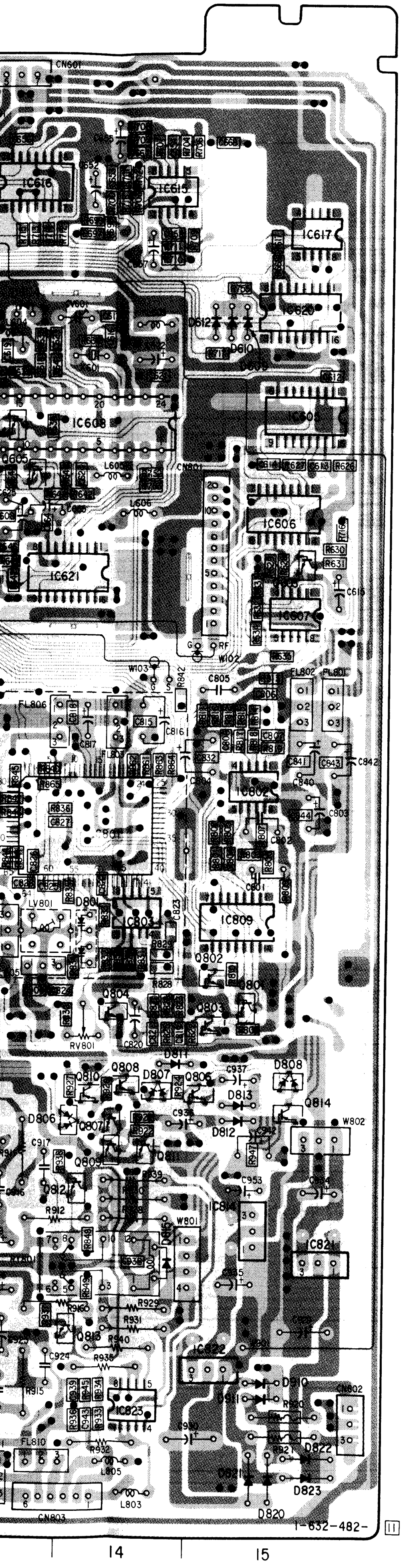
IC401	B-7
IC402	A-7
IC701	B-13
Q401	D-7
Q402	B-3
Q403	C-3
Q404	B-3
Q405	B-1
Q406	B-1
Q407	B-8
Q408	A-5
Q409	B-5
Q410	B-5
Q411	C-4
Q412	B-4
Q701	C-10
Q702	A-9
Q703	A-9
Q704	B-8
Q705	D-13
Q706	A-14

AF-52 BOARD


A
B
C
D
1
2
3
4
5
6
7
8
IC 402
IC 401
Q405
Q406
Q404
Q403
Q402
Q412
Q411
Q409
Q410
Q408
Q407
Q401
MDP-515D

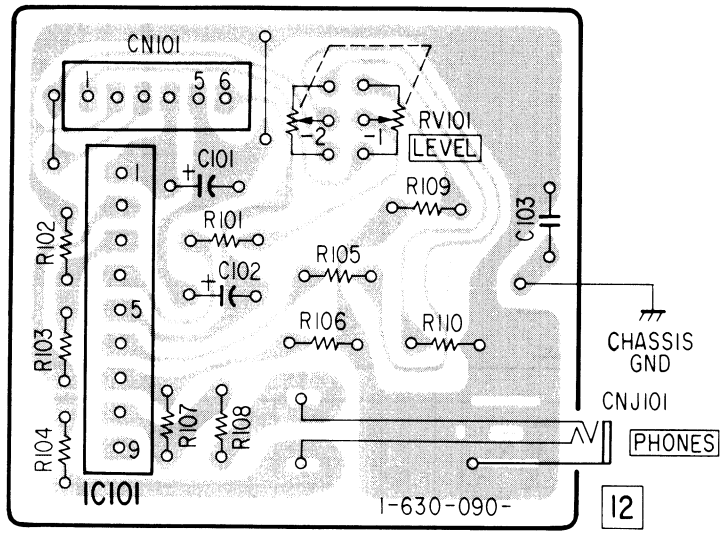
HP-50


R102
R103
R104
IC10

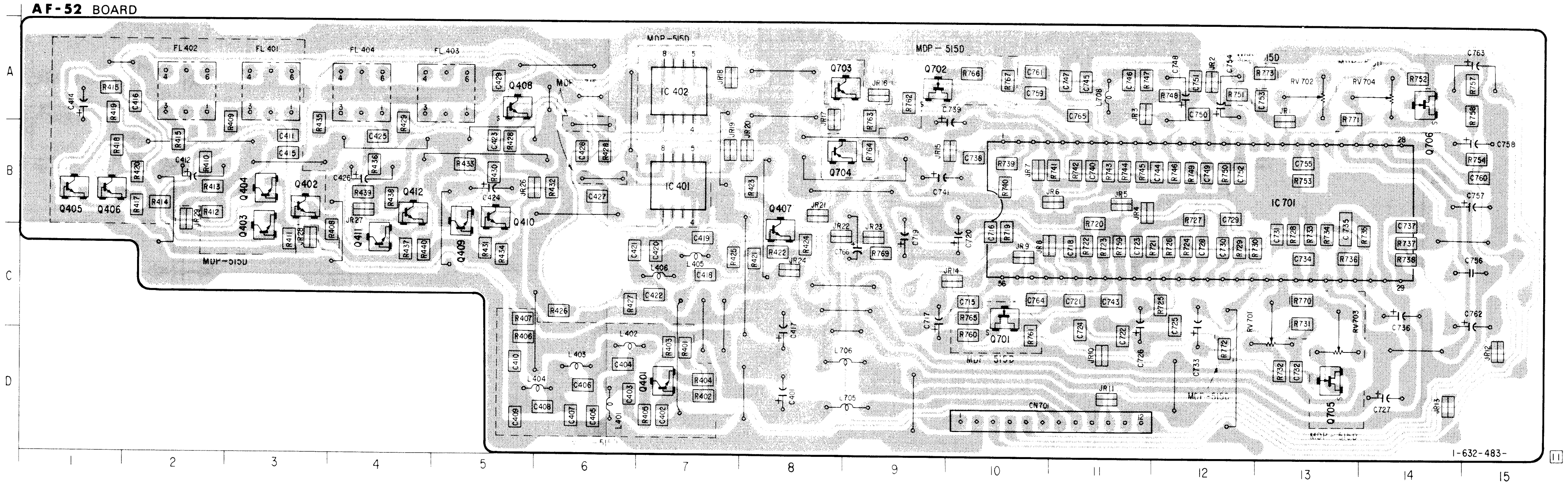

CN601
IC616
IC615
IC617
D612
D610
IC608
L605
L606
IC606
IC621
IC607
W103
W102
C805
FL802
FL806
C815
C817
C816
C841
C843
C842
IC802
C803
C836
C827
IC801
LV801
D801
IC803
C823
IC809
C801
Q802
Q804
Q803
RV801
C820
D811
Q808
D807
Q806
C937
D808
D813
D806
Q810
Q807
C917
D812
Q814
W802
C953
IC821
W801
R912
C924
R929
R931
R915
R936
R940
IC822
IC823
D810
D811
FL810
L805
L803
D822
D821
D823
D820
CN802
CN803
1-632-482-
11
14
15

AF-52 BOARD	
IC401	B-7
IC402	A-7
IC701	B-13
Q401	D-7
Q402	B-3
Q403	C-3
Q404	B-3
Q405	B-1
Q406	B-1
Q407	B-8
Q408	A-5
Q409	B-5
Q410	B-5
Q411	C-4
Q412	B-4
Q701	C-10
Q702	A-9
Q703	A-9
Q704	B-8
Q705	D-13
Q706	A-14

HP-50 BOARD

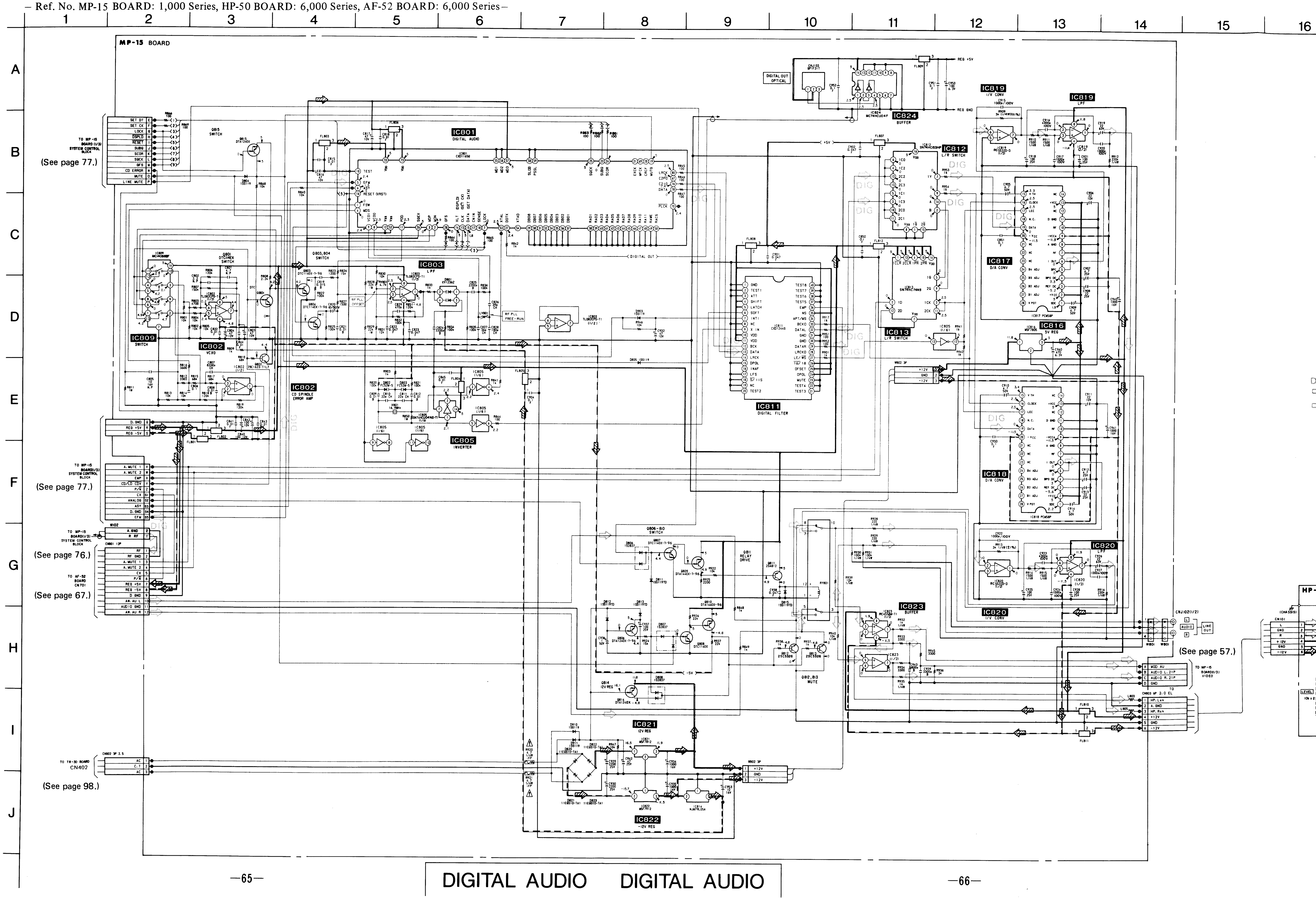

CN101
1
5
6
RV101
LEVEL
-2
-1
C101
R109
R101
C103
R102
C102
R105
R106
R110
CHASSIS GND
R103
5
CNJ101
R107
R108
PHONES
R104
9
IC101
1-630-090-
12

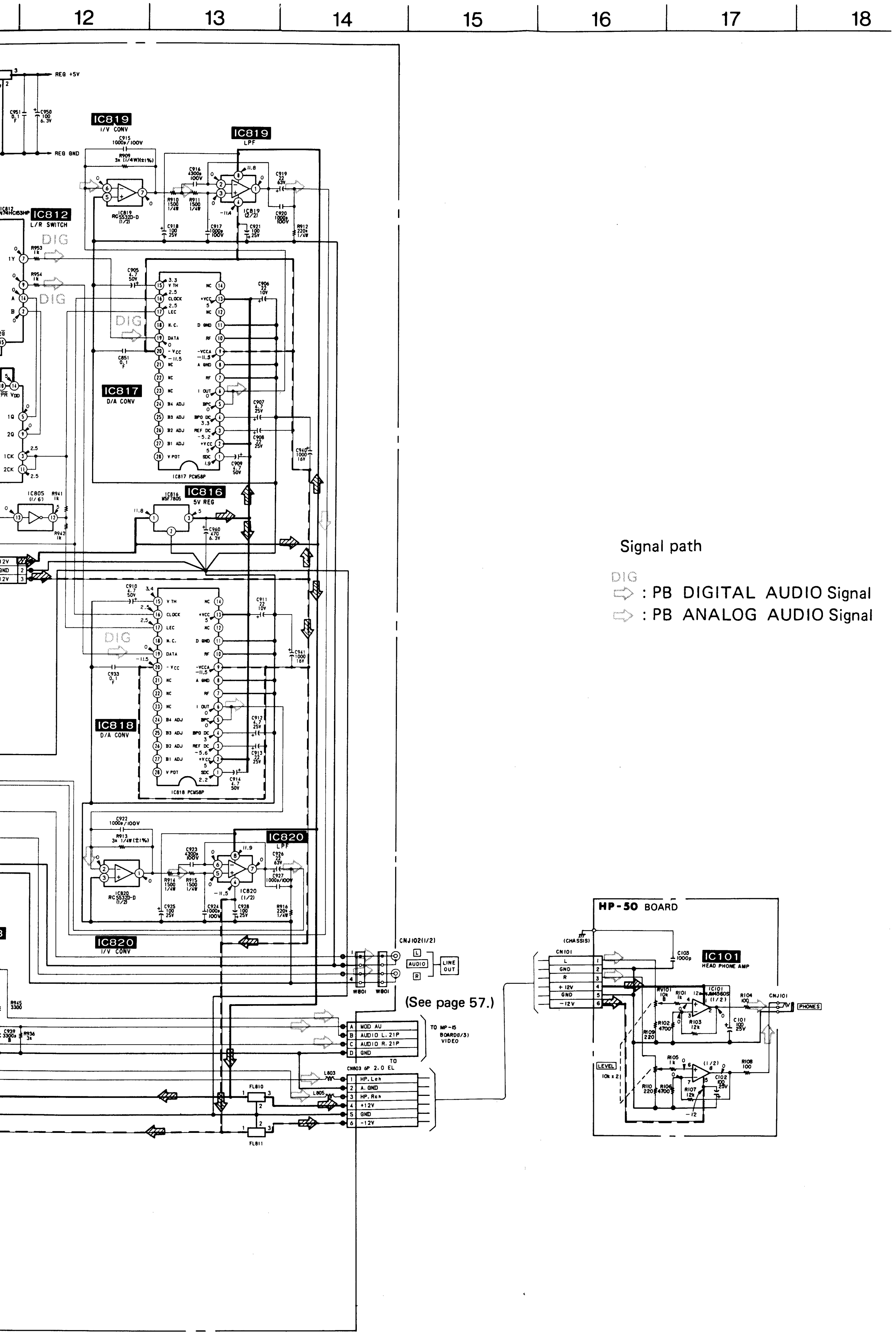
AF-52 BOARD


A
B
C
D
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
FL402
FL401
FL404
FL403
MDP-515D
MDP-5150
C414
R415
R419
C416
R418
R416
R417
R414
C412
R413
R412
R409
C411
C415
R433
C425
C426
Q404
Q403
Q402
Q411
Q412
Q409
Q410
Q408
Q405
Q406
IC402
IC401
Q407
Q703
Q702
Q704
Q701
Q705
Q706
IC701
C427
C424
L402
L403
L404
L405
L406
L401
Q401
R402
R404
R406
R407
C401
C402
C404
C406
C408
C409
C410
L706
L705
RV702
RV704
RV701
RV703
C763
C758
C757
C756
C762
C736
C727
CN701
1-632-483-
11

MP-15 (1/3) (DIGITAL AUDIO, AUDIO OUTPUT), HP-50 (HEADPHONE AMP), AF-52 (ANALOG AUDIO) SCHEMATIC DIAGRAM

– Ref. No. MP-15 BOARD: 1,000 Series, HP-50 BOARD: 6,000 Series, AF-52 BOARD: 6,000 Series –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
MP-15 BOARD
TO MP-15 BOARD (1/3) SYSTEM CONTROL BLOCK
(See page 77.)
SET DT
SET CK
LOCK
DSPLD
RESET
SUBQ
SCOR
SQCK
GFS
CD ERROR
MUTE
LINE MUTE
Q815 SWITCH
IC801 DIGITAL AUDIO
IC801 CXD1125Q
DIGITAL OUT OPTICAL
IC824 MC74HCU04F
IC824 BUFFER
REG +5V
REG GND
IC819 I/V CONV
IC819 LPF
IC812 SN74HC153NF
IC812 L/R SWITCH
IC813 SN74HC74NS
IC813 L/R SWITCH
IC817 D/A CONV
IC817 PCM58P
IC816 5V REG
IC818 D/A CONV
IC818 PCM58P
IC809 MC14066BF
IC809 SWITCH
Q801 DTC114EK SWITCH
IC802 VCXO
IC802 CD SPINDLE ERROR AMP
Q803, 804 SWITCH
IC803 LPF
RF PLL OFFSET
RF PLL FREE-RUN
IC805 INVERTER
IC811 CXD1244S
IC811 DIGITAL FILTER
DIGITAL OUT
D. GND
REG +5V
REG -5V
TO MP-15 BOARD (1/3) SYSTEM CONTROL BLOCK
(See page 77.)
A. MUTE 1
A. MUTE 2
EMP
CD/LD CDV
P/N
CX
ANALOG
ASY
D. GND
EFM
W102
TO MP-15 BOARD (1/3) SYSTEM CONTROL BLOCK
A. GND
R RF
(See page 76.)
CN801 12P
RF
RF GND
A. MUTE 1
A. MUTE 2
CX
P/N
REG +5V
REG -5V
D GND
AN. AU L
AUDIO GND
AN. AU R
TO AF-52 BOARD CN701
(See page 67.)
Q806-810 SWITCH
Q811 RELAY DRIVE
RY801
IC820 LPF
IC820 I/V CONV
IC823 BUFFER
Q812, 813 MUTE
Q814 12V REG
IC821 12V REG
IC822 -12V REG
CN802 3P 2.5
TO TR-30 BOARD CN402
(See page 98.)
AC
C.T
AC
W802 3P
+12V
GND
-12V
CNJ102 (1/2)
AUDIO
LINE OUT
(See page 57.)
W801
MOD AU
AUDIO L 21P
AUDIO R 21P
GND
TO MP-15 BOARD (3/3) VIDEO
CN803 6P 2.0 EL
HP. L+
A. GND
HP. R+
+12V
GND
-12V
TO
FL810
FL811
HP-
CN101
L
GND
R
+12V
GND
-12V
LEVEL


12
13
14
15
16
17
18
IC819
I/V CONV
IC819
LPF
IC812
L/R SWITCH
IC817
D/A CONV
IC816
5V REG
IC818
D/A CONV
IC820
LPF
IC820
I/V CONV
DIG
REG +5V
REG GND
CNJ102(1/2)
AUDIO
LINE OUT
(See page 57.)
MOD AU
A. GND
AUDIO L. 21P
AUDIO R. 21P
GND
TO MP-15 BOARD(3/3) VIDEO
HP. Lch
A. GND
HP. Rch
+12V
GND
-12V
FL810
FL811
HP-50 BOARD
IC101
HEAD PHONE AMP
CN101
L
GND
R
+12V
GND
-12V
LEVEL
CNJ101
PHONES

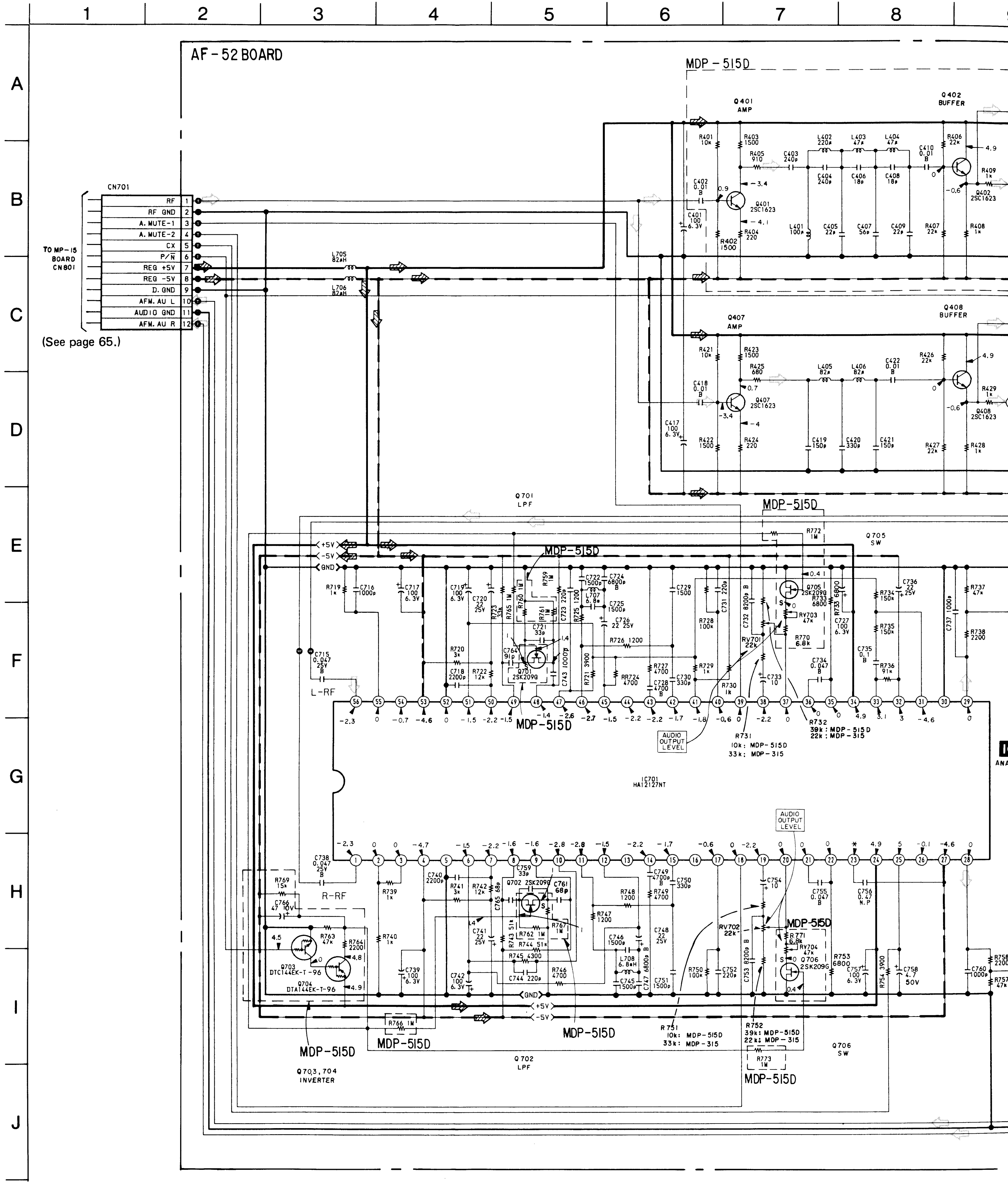
Signal path

DIG ⇨ : PB DIGITAL AUDIO Signal

⇨ : PB ANALOG AUDIO Signal

AF-52 (ANALOG AUDIO) SCHEMATIC DIAGRAM

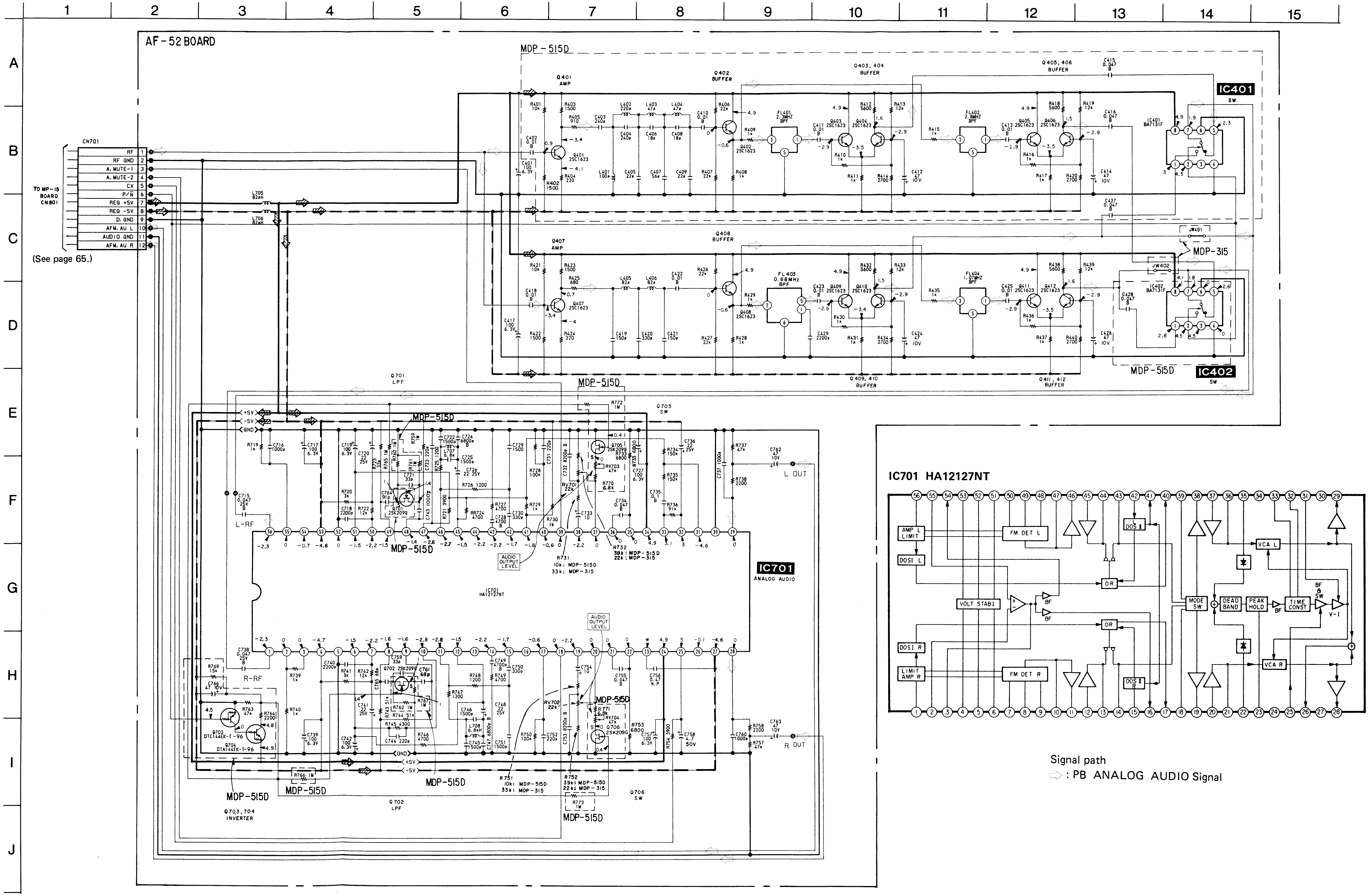
– Ref. No. AF-52 BOARD: 8,000 Series –


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
AF-52 BOARD
MDP-515D
CN701
RF
RF GND
A. MUTE-1
A. MUTE-2
CX
P/N
REG +5V
REG -5V
D. GND
AFM. AU L
AUDIO GND
AFM. AU R
TO MP-15 BOARD CN801
(See page 65.)
Q401 AMP
Q402 BUFFER
Q407 AMP
Q408 BUFFER
2SC1623
L705 82μH
L706 82μH
Q701 LPF
Q705 SW
Q702 LPF
Q706 SW
Q703, 704 INVERTER
DTC144EK-T-96
DTA144EK-T-96
2SK209G
IC701
HA12127NT
L-RF
R-RF
AUDIO OUTPUT LEVEL
RV701
RV702
R731 10k: MDP-515D 33k: MDP-315
R732 39k: MDP-515D 22k: MDP-315
R751 10k: MDP-515D 33k: MDP-315
R752 39k: MDP-515D 22k: MDP-315
R772 1M
R773 1M
R766 1M
(+5V)
(-5V)
(GND)

ANALOG AUDIO ANALOG AUDIO

AF-52 (ANALOG AUDIO) SCHEMATIC DIAGRAM

– Ref. No. AF-52 BOARD: 8,000 Series –

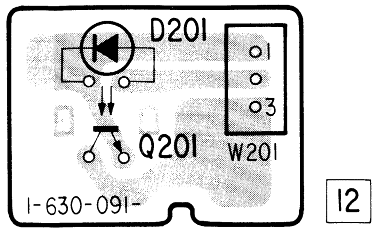

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
AF-52 BOARD
MDP-515D
MDP-315
CN701
RF
RF GND
A. MUTE-1
A. MUTE-2
CX
P/N̄
REG +5V
REG -5V
D. GND
AFM. AU L
AUDIO GND
AFM. AU R
TO MP-15 BOARD CN801
(See page 65.)
L705 82μH
L706 82μH
Q401 AMP
Q402 BUFFER
Q403, 404 BUFFER
Q405, 406 BUFFER
Q407 AMP
Q408 BUFFER
Q409, 410 BUFFER
Q411, 412 BUFFER
FL401 2.3MHz BPF
FL402 2.8MHz BPF
FL403 0.68MHz BPF
FL404 1.07MHz BPF
IC401 SW
IC401 BA7131F
IC402 SW
IC402 BA7131F
JW401
JW402
Q701 LPF
Q702 LPF
Q703, 704 INVERTER
Q705 SW
Q706 SW
Q703 DTC144EK-T-96
Q704 DTA144EK-T-96
L-RF
R-RF
AUDIO OUTPUT LEVEL
RV701 22k
RV702 22k
RV703 47k
RV704 47k
R731 10k : MDP-515D 33k : MDP-315
R732 39k : MDP-515D 22k : MDP-315
R751 10k : MDP-515D 33k : MDP-315
R752 39k : MDP-515D 22k : MDP-315
R772 1M
R773 1M
R766 1M
IC701 ANALOG AUDIO
IC701 HA12127NT
L OUT
R OUT
+5V
-5V
GND
AMP L LIMIT
DOSI L
DOSI R
LIMIT AMP R
VOLT STABI
FM DET L
FM DET R
DOS I
DOS II
OR
MODE SW
DEAD BAND
PEAK HOLD
TIME CONST
VCA L
VCA R
BF
BF & SW
V-I

IC701 HA12127NT

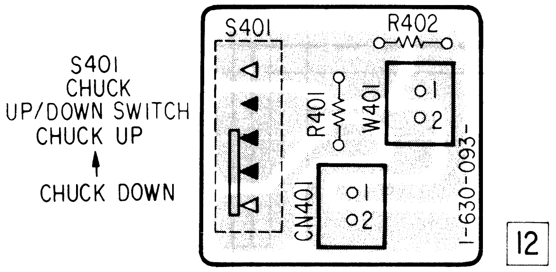
Signal path
⇨ : PB ANALOG AUDIO Signal

ANALOG AUDIO ANALOG AUDIO

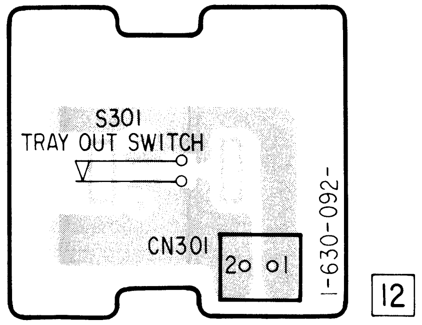
LS-17 BOARD


D201
Q201
W201
1-630-091-
12

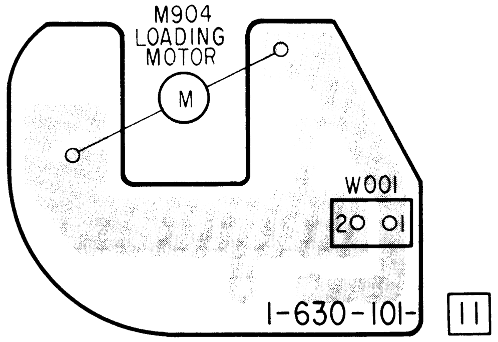
SW-107 BOARD


S401
S401
CHUCK
UP/DOWN SWITCH
CHUCK UP
CHUCK DOWN
R402
R401
W401
CN401
1-630-093-
12

SW-106 BOARD


S301
TRAY OUT SWITCH
CN301
1-630-092-
12

MT-29 BOARD


M904
LOADING
MOTOR
M
W001
1-630-101-
11

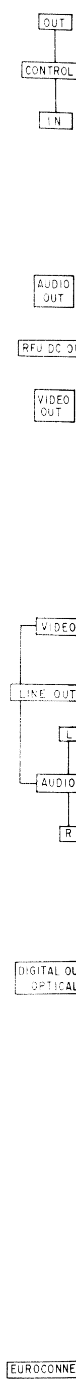
For printed wiring boards :

- o— : indicates a lead wire mounted on the componet side.
- ▨ : Pattern from the side which enables seeing.
- : Pattern of the rear side
- ● Circled numbers refer to waveforms
- o—┬—o : Jumper wire connected to the ground pattern on the component side.
- o—●—o : Jumper wire connected to the pattern on the component side.

MP 15 BOARD

D101	G-3
D102	G-1
D103	G-2
D104	I-9
D105	I-9
D601	E-8
D602	E-8
D603	F-7
D604	C-13
D605	B-1
D606	A-1
D607	B-1
D608	E-3
D609	C-15
D610	C-15
D611	D-7
D612	C-15
D613	C-7
D801	G-14
D802	H-12
D803	H-13
D804	G-11
D805	F-12
D806	I-14
D807	I-14
D808	I-15
D811	I-14
D812	I-15
D813	I-15
D815	J-14
D820	L-15
D821	L-15
D822	K-15
D823	L-15
D903	F-13
D910	K-15
D911	K-15
IC101	K-2
IC102	H-5
IC103	I-4
IC104	I-2
IC105	J-3
IC106	J-6
IC107	J-6
IC108	L-10
IC109	J-8
IC110	H-8
IC111	J-10
IC113	J-7
IC601	D-8
IC602	G-8
IC603	F-8
IC604	E-7
IC605	D-15
IC606	D-15
IC607	E-15
IC608	D-14
IC609	D-7
IC610	C-2
IC611	D-2
IC612	E-2
IC613	E-5
IC614	C-4
IC615	B-14
IC616	B-13
IC617	B-15
IC618	A-10
IC619	D-8
IC620	C-15
IC621	E-14
IC801	G-14
IC802	G-15
IC803	G-14
IC805	G-13
IC809	H-15
IC811	F-12
IC812	G-12
IC813	H-12
IC814	J-15
IC816	J-12
IC817	I-11
IC818	K-11
IC819	J-13
IC820	K-13
IC821	J-15
IC822	K-15
IC823	K-14
IC824	G-2
Q102	H-4
Q103	H-4
Q104	H-3

Q105	H-2
Q106	H-2
Q107	H-2
Q108	I-2
Q109	I-3
Q110	I-3
Q111	I-3
Q112	J-3
Q114	J-2
Q115	I-4
Q116	I-5
Q117	I-5
Q118	I-5
Q119	J-4
Q120	J-4
Q121	K-4
Q122	J-4
Q123	K-5
Q124	J-5
Q125	K-6
Q126	K-7
Q128	K-7
Q129	K-7
Q130	J-3
Q131	J-3
Q132	K-3
Q133	L-9
Q134	K-10
Q135	J-6
Q136	K-6
Q137	J-6
Q138	H-7
Q139	I-9
Q140	H-9
Q141	I-9
Q142	L-8
Q143	L-8
Q144	G-3
Q145	G-3
Q146	K-4
Q147	F-2
Q148	K-4
Q150	J-4
Q151	K-4
Q152	K-4
Q153	K-4
Q154	K-3
Q155	K-2
Q156	K-3
Q157	K-3
Q158	J-3
Q159	L-8
Q160	K-8
Q161	K-8
Q162	K-9
Q163	K-9
Q164	J-10
Q165	J-9
Q166	J-10
Q167	J-9
Q168	K-4
Q169	K-5
Q601	F-9
Q602	F-8
Q603	E-15
Q604	D-13
Q605	D-13
Q606	E-13
Q607	D-13
Q608	A-1
Q609	A-1
Q610	D-3
Q611	B-2
Q612	E-2
Q613	A-5
Q614	F-9
Q615	C-7
Q618	A-13
Q801	H-15
Q802	H-15
Q803	H-15
Q804	H-14
Q806	I-15
Q807	I-14
Q808	I-14
Q809	I-14
Q810	I-14
Q811	I-14
Q812	J-14
Q813	K-14
Q814	I-15
Q815	H-11


OUT
CONTROL
IN
AUDIO
OUT
RFU DC
VIDEO
OUT
VIDEO
LINE OUT
L
AUDIO
R
DIGITAL OU
OPTICAL
EUROCONNE

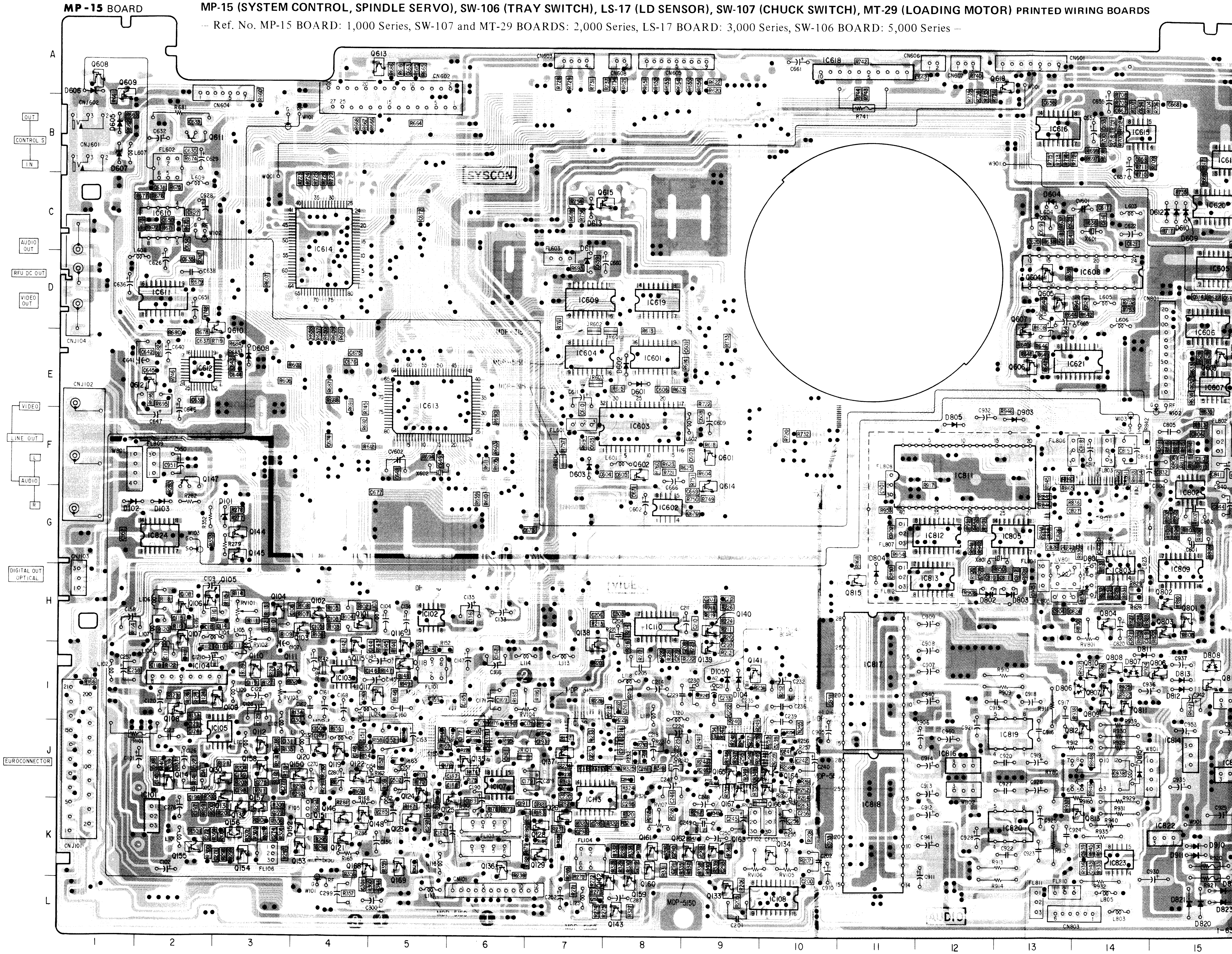
SYSTEM CONTROL SYSTEM CONTROL

MP-15 (SYSTEM CONTROL, SPINDLE SERVO), SW-106 (TRAY SWITCH), LS-17 (LD SENSOR), SW-107 (CHUCK SWITCH), MT-29 (LOADING MOTOR) PRINTED WIRING BOARDS

– Ref. No. MP-15 BOARD: 1,000 Series, SW-107 and MT-29 BOARDS: 2,000 Series, LS-17 BOARD: 3,000 Series, SW-106 BOARD: 5,000 Series –

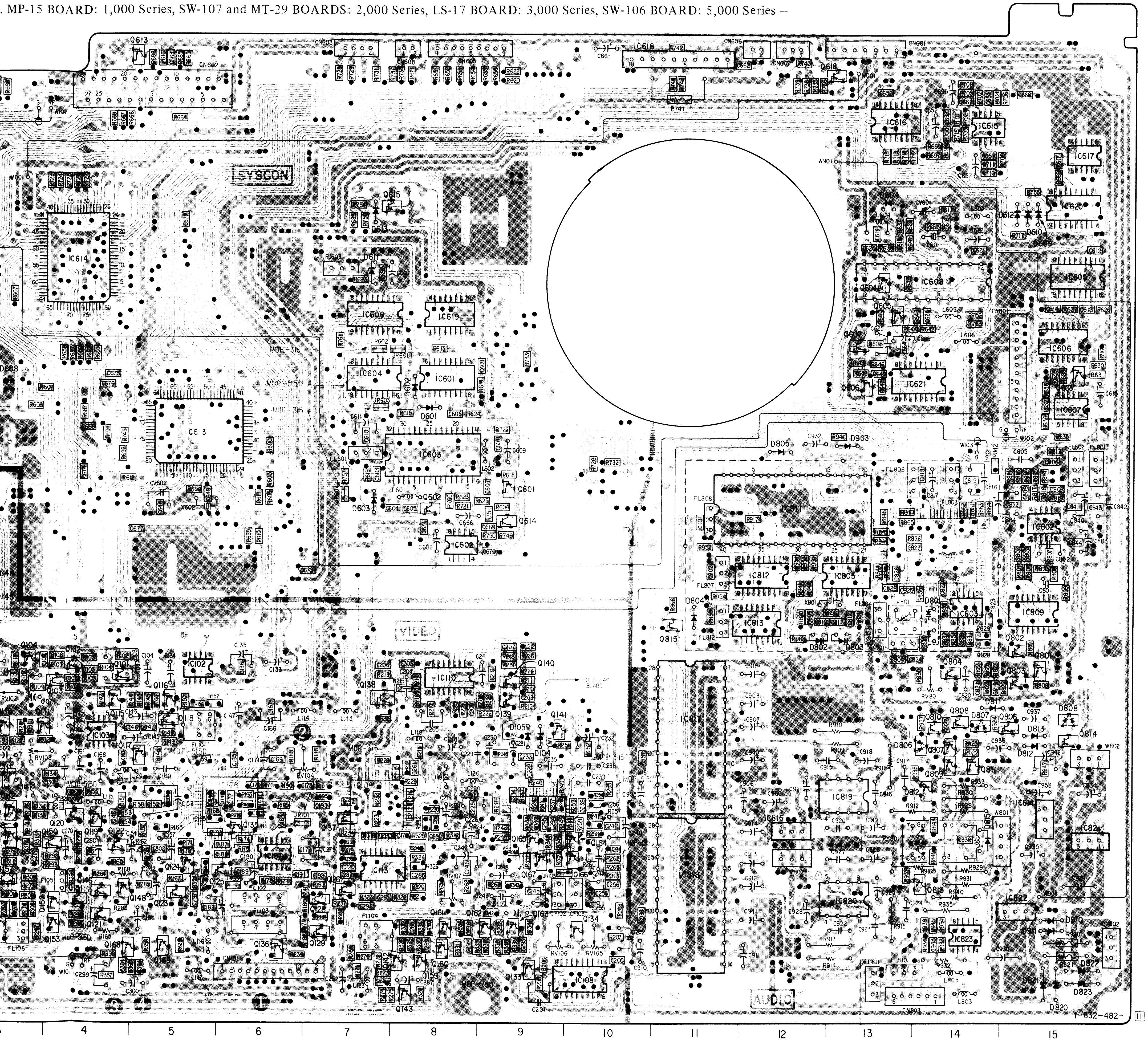
MP-15 BOARD

D101	G-3
D102	G-1
D103	G-2
D104	I-9
D105	I-9
D601	E-8
D602	E-8
D603	F-7
D604	C-13
D605	B-1
D606	A-1
D607	B-1
D608	E-3
D609	C-15
D610	C-15
D611	D-7
D612	C-15
D613	C-7
D801	G-14
D802	H-12
D803	H-13
D804	G-11
D805	F-12
D806	I-14
D807	I-14
D808	I-15
D811	I-14
D812	I-15
D813	I-15
D815	J-14
D820	L-15
D821	L-15
D822	K-15
D823	L-15
D903	F-13
D910	K-15
D911	K-15
IC101	K-2
IC102	H-5
IC103	I-4
IC104	I-2
IC105	J-3
IC106	J-6
IC107	J-6
IC108	L-10
IC109	J-8
IC110	H-8
IC111	J-10
IC113	J-7
IC601	D-8
IC602	G-8
IC603	F-8
IC604	E-7
IC605	D-15
IC606	D-15
IC607	E-15
IC608	D-14
IC609	D-7
IC610	C-2
IC611	D-2
IC612	E-2
IC613	E-5
IC614	C-4
IC615	B-14
IC616	B-13
IC617	B-15
IC618	A-10
IC619	D-8
IC620	C-15
IC621	E-14
IC801	G-14
IC802	G-15
IC803	G-14
IC805	G-13
IC809	H-15
IC811	F-12
IC812	G-12
IC813	H-12
IC814	J-15
IC816	J-12
IC817	I-11
IC818	K-11
IC819	J-13
IC820	K-13
IC821	J-15
IC822	K-15
IC823	K-14
IC824	G-2
Q102	H-4
Q103	H-4
Q104	H-3
Q105	H-2
Q106	H-2
Q107	H-2
Q108	I-2
Q109	I-3
Q110	I-3
Q111	I-3
Q112	J-3
Q114	J-2
Q115	I-4
Q116	I-5
Q117	I-5
Q118	I-5
Q119	J-4
Q120	J-4
Q121	K-4
Q122	J-4
Q123	K-5
Q124	J-5
Q125	K-6
Q126	K-7
Q128	K-7
Q129	K-7
Q130	J-3
Q131	J-3
Q132	K-3
Q133	L-9
Q134	K-10
Q135	J-6
Q136	K-6
Q137	J-6
Q138	H-7
Q139	I-9
Q140	H-9
Q141	I-9
Q142	L-8
Q143	L-8
Q144	G-3
Q145	G-3
Q146	K-4
Q147	F-2
Q148	K-4
Q150	J-4
Q151	K-4
Q152	K-4
Q153	K-4
Q154	K-3
Q155	K-2
Q156	K-3
Q157	K-3
Q158	J-3
Q159	L-8
Q160	K-8
Q161	K-8
Q162	K-9
Q163	K-9
Q164	J-10
Q165	J-9
Q166	J-10
Q167	J-9
Q168	K-4
Q169	K-5
Q601	F-9
Q602	F-8
Q603	E-15
Q604	D-13
Q605	D-13
Q606	E-13
Q607	D-13
Q608	A-1
Q609	A-1
Q610	D-3
Q611	B-2
Q612	E-2
Q613	A-5
Q614	F-9
Q615	C-7
Q618	A-13
Q801	H-15
Q802	H-15
Q803	H-15
Q804	H-14
Q806	I-15
Q807	I-14
Q808	I-14
Q809	I-14
Q810	I-14
Q811	I-14
Q812	J-14
Q813	K-14
Q814	I-15
Q815	H-11


MP-15 BOARD
OUT
CONTROL S
IN
AUDIO OUT
RFU DC OUT
VIDEO OUT
VIDEO
LINE OUT
L
AUDIO
R
DIGITAL OUT OPTICAL
EUROCONNECTOR
CNJ602
CNJ601
CNJ104
CNJ102
CNJ103
CNJ101
CN604
CN602
CN603
CN605
CN606
CN601
CN801
CN101
CN803
SYSCON
IC614
IC613
IC610
IC611
IC612
IC609
IC619
IC604
IC601
IC603
IC602
IC618
IC616
IC615
IC620
IC608
IC606
IC621
IC607
IC811
IC812
IC805
IC813
IC803
IC809
IC817
IC818
IC819
IC820
IC823
IC824
IC101
IC102
IC103
IC104
IC105
IC110
IC113
IC108
AUDIO
MDP-515D
A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

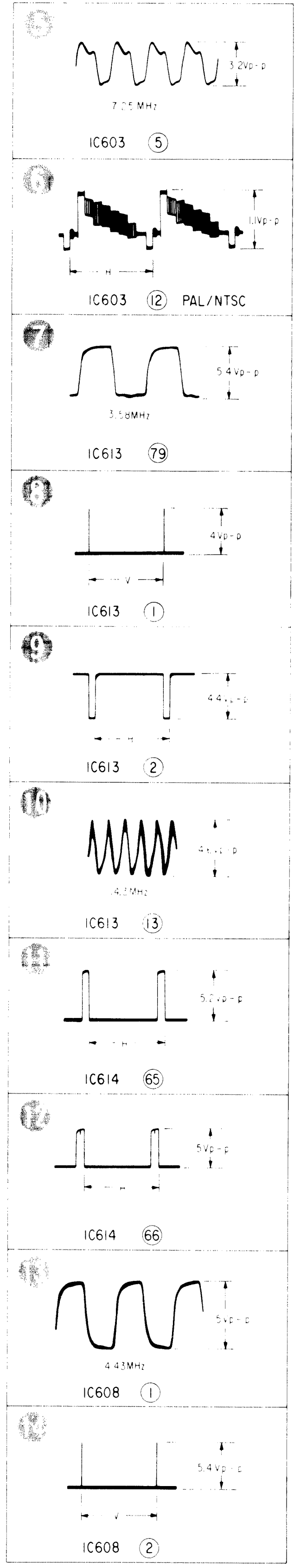
YSTEM CONTROL, SPINDLE SERVO), SW-106 (TRAY SWITCH), LS-17 (LD SENSOR), SW-107 (CHUCK SWITCH), MT-29 (LOADING MOTOR) PRINTED WIRING BOARDS

. MP-15 BOARD: 1,000 Series, SW-107 and MT-29 BOARDS: 2,000 Series, LS-17 BOARD: 3,000 Series, SW-106 BOARD: 5,000 Series –



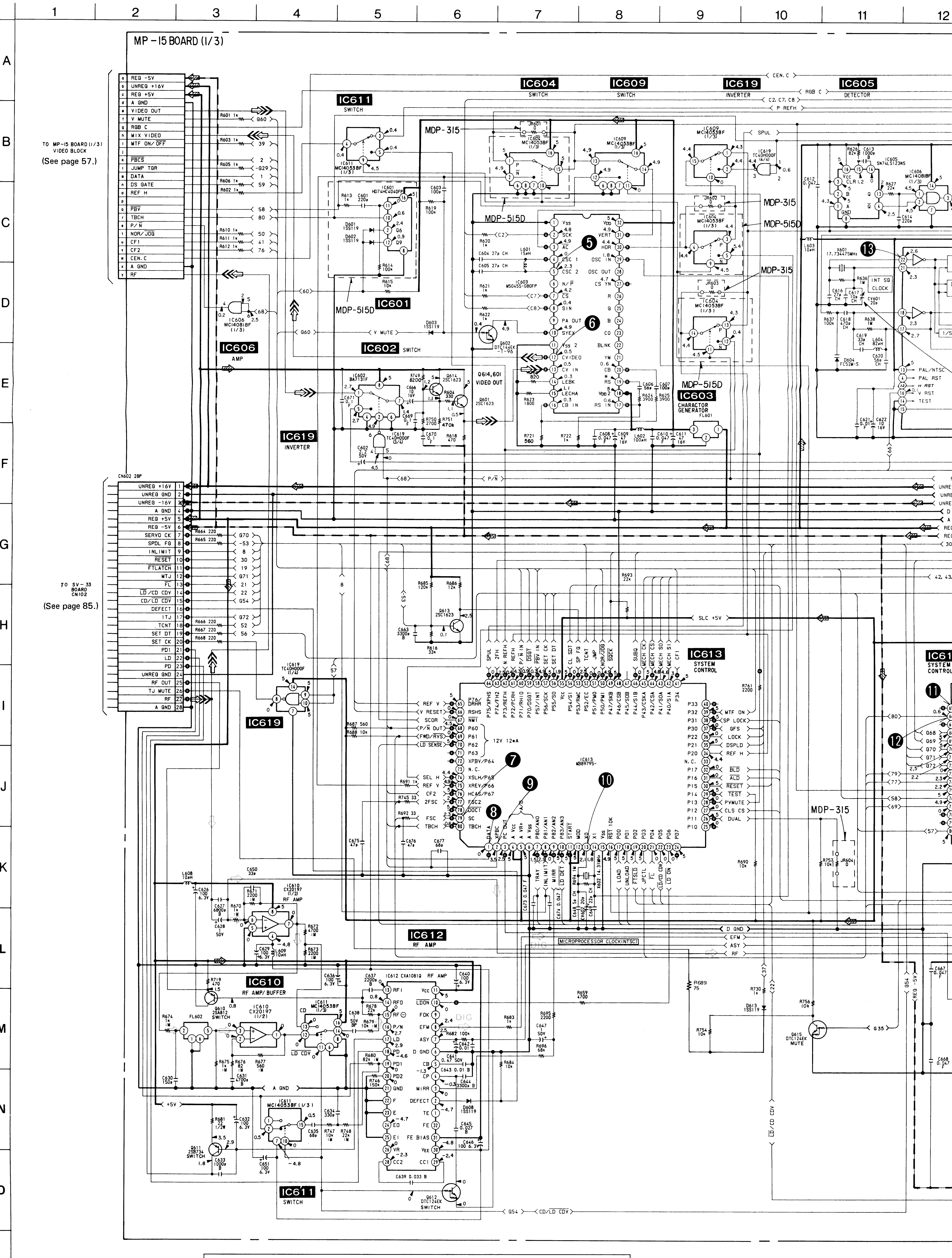
SYSCON
VIDEO
AUDIO
IC614
IC613
IC603
IC617
IC618
IC811
IC819
1-632-482-11
4
5
6
7
8
9
10
11
12
13
14
15

MP-15 BOARD (SYSCON)



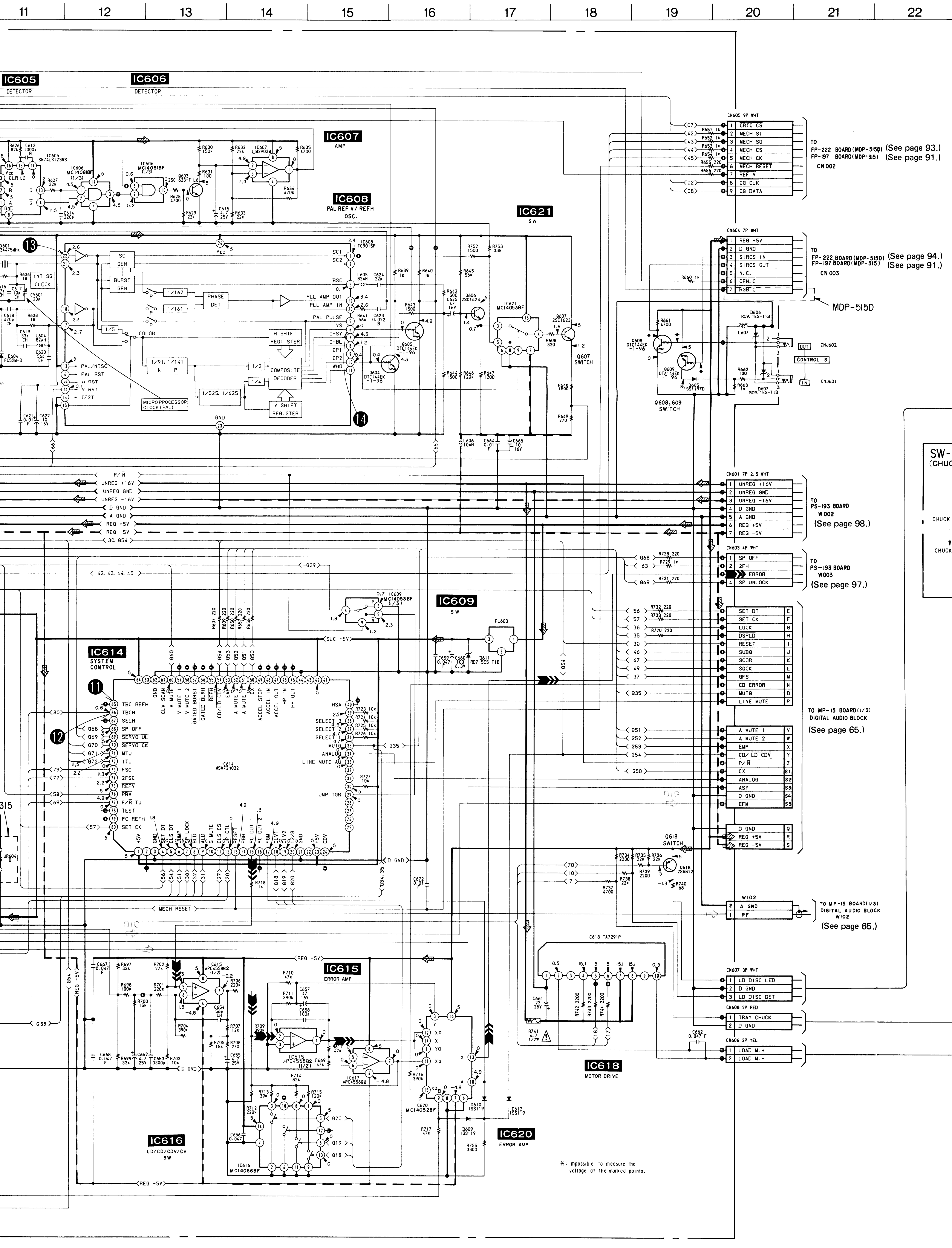
MP-15 (1/3) (SYSTEM CONTROL, SPINDLE SERVO), SW-106 (TRAY SWITCH), LS-17 (LD SENSOR), SW-107 (CHUCK SWITCH), MT-29 (LOADING MOTOR) SCHEMATIC DIAGRAMS

– Ref. No. MP-15 BOARD: 1,000 Series, SW-107 and MT-29 BOARDS: 2,000 Series, LS-17 BOARD: 3,000 Series, SW-106 BOARD: 5,000 Series –

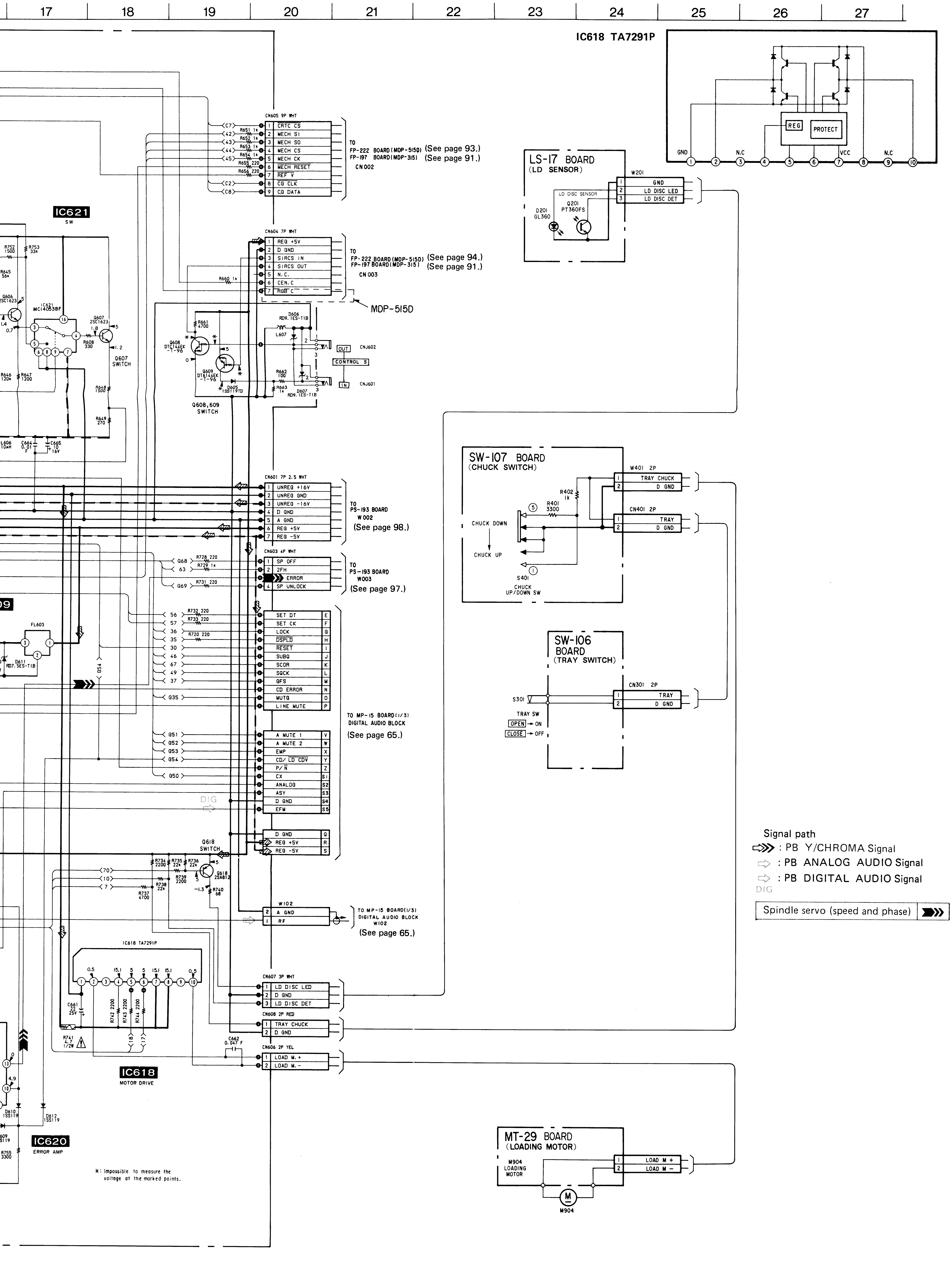


MP-15 BOARD (1/3)
TO MP-15 BOARD (1/3) VIDEO BLOCK
(See page 57.)
TO SV-33 BOARD CN102
(See page 85.)
IC604 SWITCH
IC609 SWITCH
IC619 INVERTER
IC605 DETECTOR
IC611 SWITCH
IC601
IC602 SWITCH
IC606 AMP
IC603 CHARACTOR GENERATOR
IC613 SYSTEM CONTROL
IC612 RF AMP
IC610 RF AMP/BUFFER
IC612 CXA1081Q RF AMP
IC613 MB89795-
MDP-315
MDP-515D
Q614,601 VIDEO OUT
Q615 DTC144EK MUTE
Q612 DTC124EK SWITCH
Q611 2SB734 SWITCH
Q610 2SA812 SWITCH
X601 17.734475MHz
MICROPROCESSOR CLOCK(NTSC)
CN602 28P
UNREG +16V
UNREG GND
UNREG -16V
A GND
REG +5V
REG -5V
SERVO CK
SPDL FG
INLIMIT
RESET
FTLATCH
MTJ
FL
LD/CD CDV
CD/LD CDV
DEFECT
1TJ
TCNT
SET DT
SET CK
PD1
LD
PD
UNREG GND
RF OUT
TJ MUTE
RF
A GND
REG -5V
UNREG +16V
REG +5V
A GND
VIDEO OUT
V MUTE
RGB C
MIX VIDEO
MTF ON/OFF
PBCS
JUMP TGR
DATA
DS GATE
REF H
PBV
TBCH
P/N
NOR/JOG
CF1
CF2
CEN. C
A GND
RF

SYSTEM CONTROL SYSTEM CONTROL


11
12
13
14
15
16
17
18
19
20
21
22
IC605
DETECTOR
IC606
DETECTOR
IC607
AMP
IC608
PAL REF V/ REFH
OSC.
IC621
SW
IC605 SN74LS123NS
IC606 MC14081BF (1/3)
IC607 LM2903M
IC608 TC9015P
IC621 MC14053BF
Q603 2SC1623-T1L6
Q605 DTC144EK -T-96
Q604 DTC144EK -T-96
Q606 2SC1623
Q607 2SC1623
Q607 SWITCH
Q608 DTC144EK -T-96
Q609 DTA144EK -T-96
Q608,609 SWITCH
D604 FC52M-S
D605 1SS119TD
D606 RD9.1ES-T1B
D607 RD9.1ES-T1B
X601 4.434475MHz
SC GEN
BURST GEN
INT SG CLOCK
PHASE DET
1/162
1/161
1/5
COLOR
1/91, 1/141
N P
1/2
1/4
COMPOSITE DECODER
H SHIFT REGISTER
V SHIFT REGISTER
1/525, 1/625
MICROPROCESSOR CLOCK (PAL)
PAL/NTSC
PAL RST
H RST
V RST
TEST
SC1
SC2
BSC
PLL AMP OUT
PLL AMP IN
PAL PULSE
VS
C-SY
C-BL
CP1
CP2
WHO
Vcc
GND
CN605 9P WHT
CRTC CS
MECH SI
MECH SO
MECH CS
MECH CK
MECH RESET
REF V
CG CLK
CG DATA
TO FP-222 BOARD (MDP-515D) (See page 93.)
FP-197 BOARD (MDP-315) (See page 91.)
CN002
CN604 7P WHT
REG +5V
D GND
SIRCS IN
SIRCS OUT
N.C.
CEN.C
RGB C
TO FP-222 BOARD (MDP-515D) (See page 94.)
FP-197 BOARD (MDP-315) (See page 91.)
CN003
MDP-515D
OUT
CONTROL S
IN
CNJ602
CNJ601
SW-
(CHUC
CHUCK
CHUCK
P/N
UNREG +16V
UNREG GND
UNREG -16V
D GND
A GND
REG +5V
REG -5V
30, G54
CN601 7P 2.5 WHT
TO PS-193 BOARD W002 (See page 98.)
CN603 4P WHT
SP OFF
2FH
ERROR
SP UNLOCK
TO PS-193 BOARD W003 (See page 97.)
42, 43, 44, 45
IC609
SW
IC609 MC14053BF (1/3)
FL603
SLC +5V
D611 RD7.5ES-T1B
IC614
SYSTEM CONTROL
IC614 MSM72H032
TBC REFH
TBCH
SELH
SP OFF
SERVO UL
SERVO CK
MTJ
1TJ
FSC
2FSC
REFV
PBV
F/R TJ
TEST
PC REFH
SET CK
GND
SCAN
V MUTE 1
V MUTE 2
V MUTE
GATED BURST
GATED DLRH
CD/LD CDV
EMP
A MUTE 1
A MUTE 2
ACCEL STOP
ACCEL IN
ACCEL OUT
HP IN
HP OUT
HSA
SELECT 3
SELECT 2
SELECT 1
MUTG
ANALOG
LINE MUTE AU
JMP TGR
SET DT
CLS DT
JUMP
LOCK
BLD
ALD
G MUTE
CLS CS
UP
CTL
RESET
PBH
PC OUT 1
PC OUT 2
FGM
CLV1
CLV2
12/8
CDV
MECH RESET
D GND
DIG
SET DT
SET CK
LOCK
DSPLD
RESET
SUBQ
SCOR
SQCK
GFS
CD ERROR
MUTG
LINE MUTE
A MUTE 1
A MUTE 2
EMP
CD/LD CDV
P/N
CX
ANALOG
ASY
D GND
EFM
D GND
REG +5V
REG -5V
TO MP-15 BOARD(1/3) DIGITAL AUDIO BLOCK (See page 65.)
Q618 SWITCH
Q618 2SA812
W102
A GND
RF
TO MP-15 BOARD(1/3) DIGITAL AUDIO BLOCK W102 (See page 65.)
IC618 TA7291P
IC618
MOTOR DRIVE
CN607 3P WHT
LD DISC LED
D GND
LD DISC DET
CN608 2P RED
TRAY CHUCK
D GND
CN606 2P YEL
LOAD M.+
LOAD M.-
IC615
ERROR AMP
IC615 μPC4558G2 (1/2)
IC617 μPC4558G2
IC616
LD/CD/CDV/CV SW
IC616 MC14066BF
IC620 MC14052BF
IC620
ERROR AMP
D609 1SS119
D610 1SS119
D612 1SS119
REG -5V
REG +5V
315
*: Impossible to measure the voltage at the marked points.

SYSTEM CONTROL SYSTEM CON



17
18
19
20
21
22
23
24
25
26
27
IC618 TA7291P
GND
N.C
VCC
N.C
REG
PROTECT
CN605 9P WHT
CRTC CS
MECH SI
MECH SO
MECH CS
MECH CK
MECH RESET
REF V
CG CLK
CG DATA
TO
FP-222 BOARD(MDP-515D) (See page 93.)
FP-197 BOARD(MDP-315) (See page 91.)
CN002
LS-17 BOARD
(LD SENSOR)
W201
LD DISC SENSOR
GND
LD DISC LED
LD DISC DET
D201
GL360
Q201
PT360FS
IC621
SW
IC621
MC14053BF
Q607
2SC1623
Q607
SWITCH
CN604 7P WHT
REG +5V
D GND
SIRCS IN
SIRCS OUT
N.C.
CEN.C
RGB C
TO
FP-222 BOARD(MDP-515D) (See page 94.)
FP-197 BOARD(MDP-315) (See page 91.)
CN003
MDP-515D
D606
RD9.1ES-T1B
L607
OUT
CONTROL S
IN
CNJ602
CNJ601
Q608
DTC144EK
Q609
DTA144EK
D605
1SS119TD
D607
RD9.1ES-T1B
Q608,609
SWITCH
SW-107 BOARD
(CHUCK SWITCH)
W401 2P
TRAY CHUCK
D GND
CN401 2P
TRAY
D GND
CHUCK DOWN
CHUCK UP
S401
CHUCK
UP/DOWN SW
CN601 7P 2.5 WHT
UNREG +16V
UNREG GND
UNREG -16V
D GND
A GND
REG +5V
REG -5V
TO
PS-193 BOARD
W002
(See page 98.)
CN603 4P WHT
SP OFF
2FH
ERROR
SP UNLOCK
TO
PS-193 BOARD
W003
(See page 97.)
SW-106
BOARD
(TRAY SWITCH)
CN301 2P
TRAY
D GND
S301
TRAY SW
OPEN → ON
CLOSE → OFF
FL603
D611
RD7.5ES-T1B
SET DT
SET CK
LOCK
DSPLD
RESET
SUBQ
SCOR
SQCK
GFS
CD ERROR
MUTG
LINE MUTE
TO MP-15 BOARD(1/3)
DIGITAL AUDIO BLOCK
(See page 65.)
A MUTE 1
A MUTE 2
EMP
CD/LD CDV
P/N
CX
ANALOG
ASY
D GND
EFM
DIG
D GND
REG +5V
REG -5V
Q618
SWITCH
Q618
2SA812
W102
A GND
RF
TO MP-15 BOARD(1/3)
DIGITAL AUDIO BLOCK
W102
(See page 65.)
IC618 TA7291P
CN607 3P WHT
LD DISC LED
D GND
LD DISC DET
CN608 2P RED
TRAY CHUCK
D GND
CN606 2P YEL
LOAD M.+
LOAD M.-
IC618
MOTOR DRIVE
D610
1SS119
D612
1SS119
IC620
ERROR AMP
MT-29 BOARD
(LOADING MOTOR)
M904
LOADING
MOTOR
LOAD M +
LOAD M −
M904

*: Impossible to measure the voltage at the marked points.

Signal path

⇨》: PB Y/CHROMA Signal

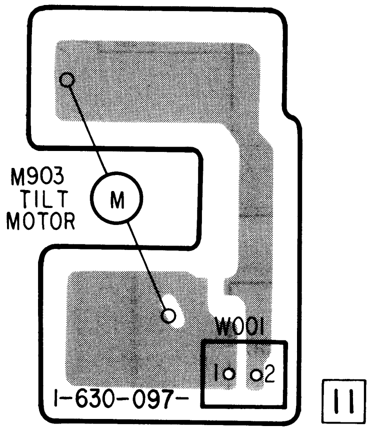
⇨ : PB ANALOG AUDIO Signal

⇨ : PB DIGITAL AUDIO Signal
DIG

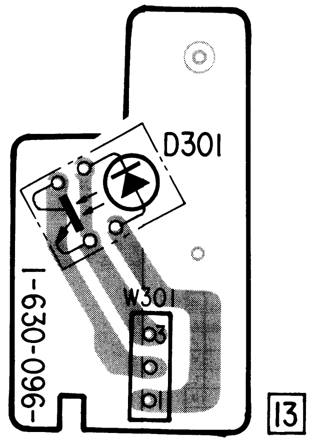
Spindle servo (speed and phase) 》》

SYSTEM CONTROL SYSTEM CONTROL

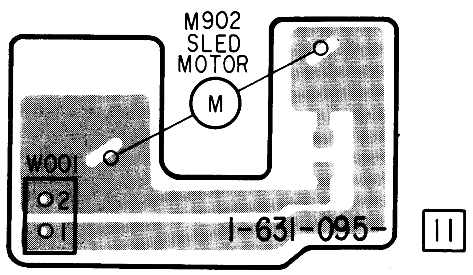
MT-28 BOARD


M903
TILT
MOTOR
M
W001
1
2
1-630-097-
11

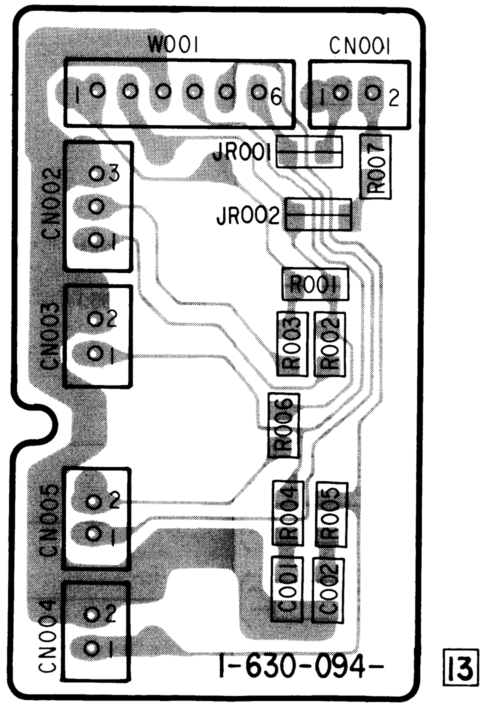
FG-13 BOARD


D301
W301
3
2
1
1-630-096-
13

MT-30 BOARD


M902
SLED
MOTOR
M
W001
2
1
1-631-095-
11

CK-14 BOARD


W001
CN001
1
6
1
2
JR001
JR002
R007
CN002
3
1
CN003
2
1
R001
R003
R002
R006
CN005
2
1
R004
R005
C001
C002
CN004
2
1
1-630-094-
13

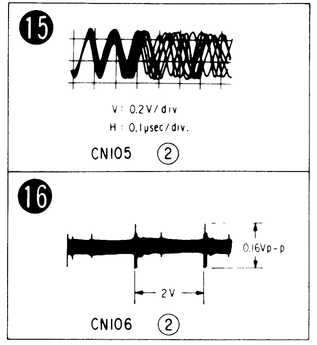
For printed wiring boards :

- ○— : indicates a lead wire mounted on the componet side.
- ▒ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- ● Circled numbers refer to waveforms.
- ○—⏚—○ : Jumper wire connected to the ground pattern on the component side.
- ○—●—○ : Jumper wire connected to the pattern on the component side.

SV-33 (SERVO), FG-13 (SPINDLE FG), CK-

– Ref. No. SV-33 and CK-14 BOARDS: 7,00

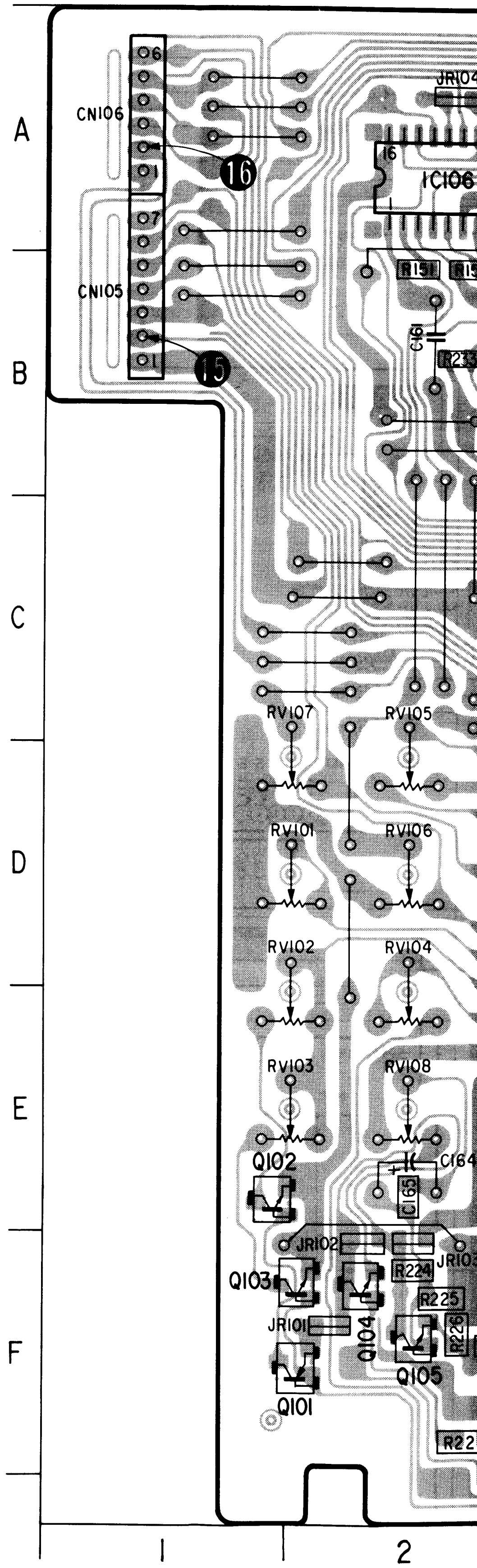
SV-33 BOARD (SERVO)



SV-33 BOARD

D101	E-5
D102	B-6
D103	C-4
IC102	B-4
IC103	D-4
IC104	D-5
IC106	A-2
IC107	B-6
IC108	A-6
IC109	B-8
IC110	A-8
IC111	C-6
Q101	F-2
Q102	E-1
Q103	F-2
Q104	F-2
Q105	F-2
Q106	B-6
Q107	E-3

SV-33 BOARD


A
B
C
D
E
F
1
2
CN106
CN105
6
1
7
1
⓰
⓯
JR104
IC106
16
R151
C161
R233
RV107
RV105
RV101
RV106
RV102
RV104
RV103
RV108
Q102
C164
C165
Q103
JR102
JR103
R224
R225
JR101
Q104
Q105
R226
Q101
R22

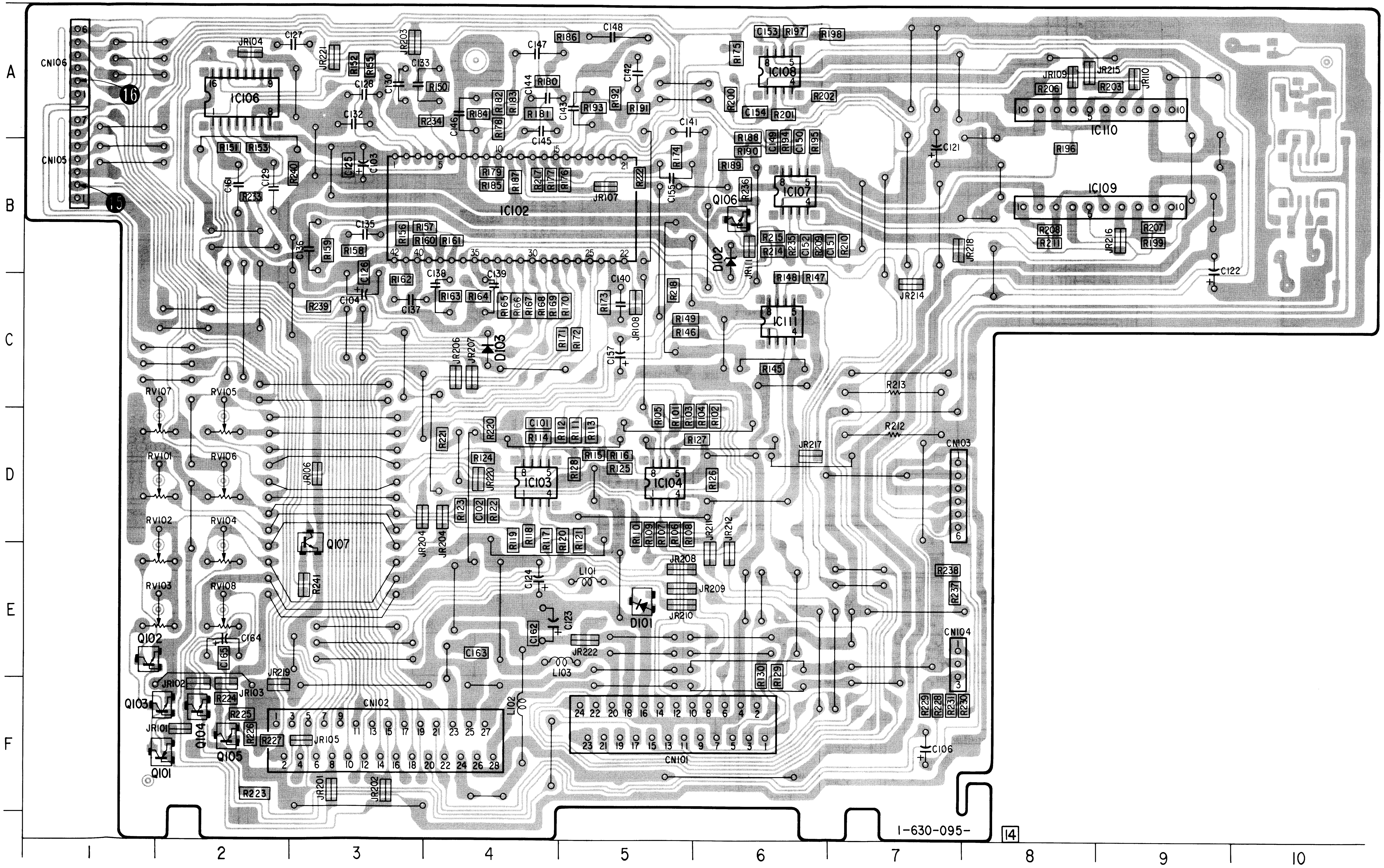
SV-33 (SERVO), FG-13 (SPINDLE FG), CK-14 (MOTOR RELAY), MT-30 (TILT MOTOR), MT-28 (SLED MOTOR) PRINTED WIRING BOARDS

– Ref. No. SV-33 and CK-14 BOARDS: 7,000 Series, MT-30 BOARD: 5,000 Series, FG-13 and MT-28 BOARDS: 3,000 Series –

SV-33 BOARD

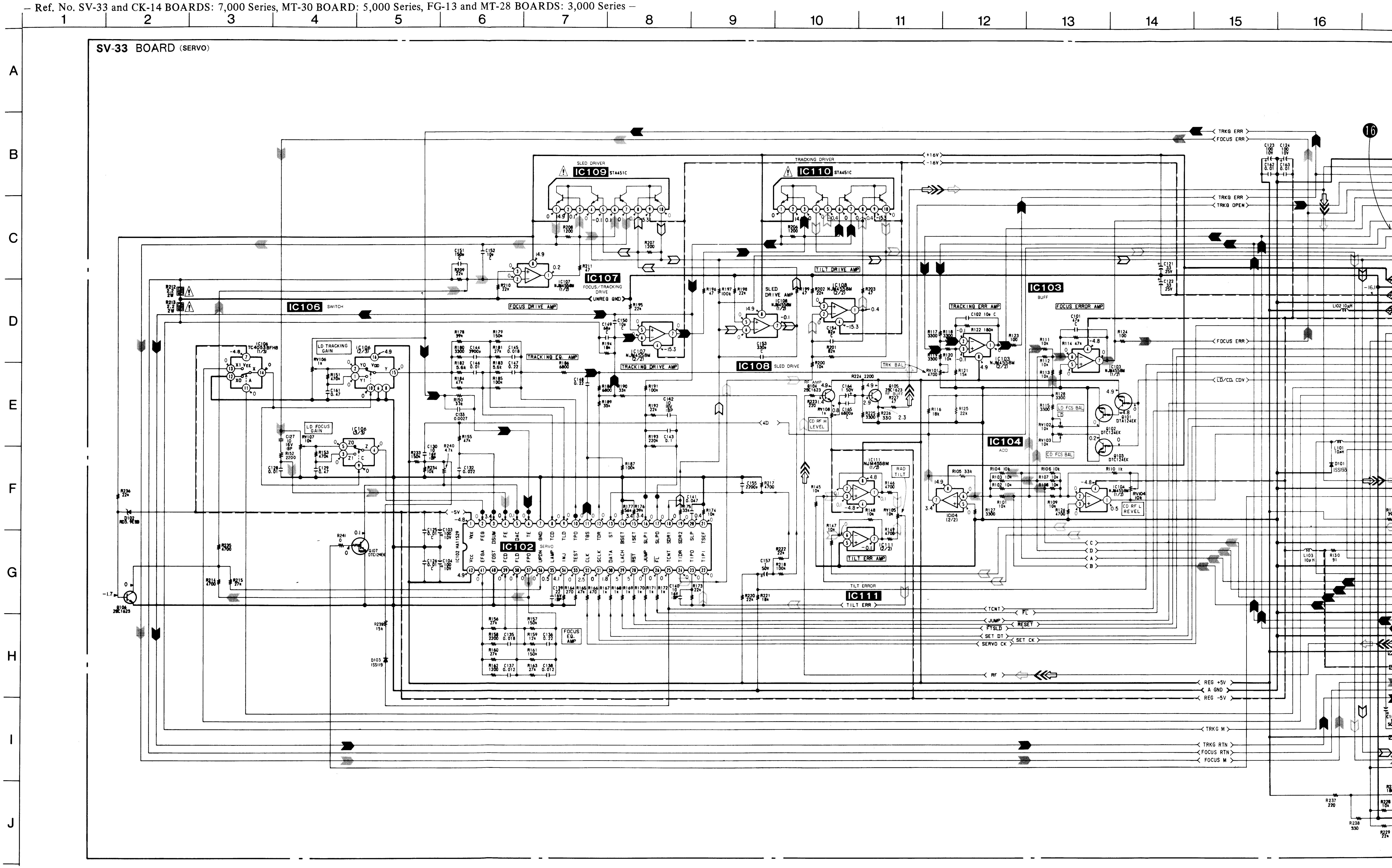
SV-33 BOARD

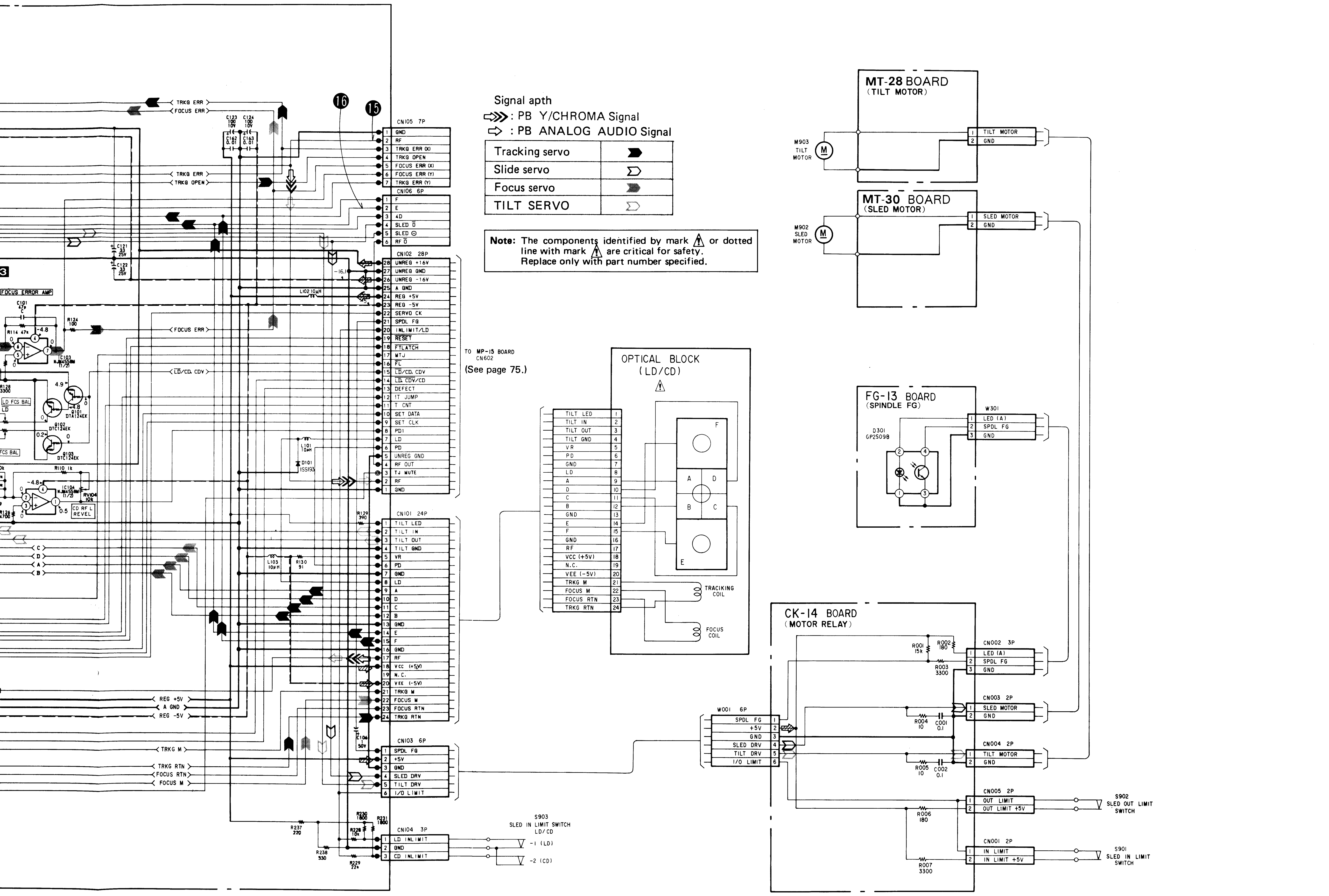
D101	E-5
D102	B-6
D103	C-4
IC102	B-4
IC103	D-4
IC104	D-5
IC106	A-2
IC107	B-6
IC108	A-6
IC109	B-8
IC110	A-8
IC111	C-6
Q101	F-2
Q102	E-1
Q103	F-2
Q104	F-2
Q105	F-2
Q106	B-6
Q107	E-3


A
B
C
D
E
F
1
2
3
4
5
6
7
8
9
10
CN106
CN105
CN101
CN102
CN103
CN104
IC102
IC103
IC104
IC106
IC107
IC108
IC109
IC110
IC111
Q101
Q102
Q103
Q104
Q105
Q106
Q107
D101
D102
D103
RV101
RV102
RV103
RV104
RV105
RV106
RV107
RV108
L101
L102
L103
R212
R213
16
15
1-630-095-
14

SV-33 (SERVO), FG-13 (SPINDLE FG), CK-14 (MOTOR RELAY), MT-30 (TILT MOTOR), MT-28 (SLED MOTOR) SCHEMATIC DIAGRAM BOARDS

– Ref. No. SV-33 and CK-14 BOARDS: 7,000 Series, MT-30 BOARD: 5,000 Series, FG-13 and MT-28 BOARDS: 3,000 Series –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
SV-33 BOARD (SERVO)
IC109 STA451C
SLED DRIVER
IC110 STA451C
TRACKING DRIVER
IC107
FOCUS/TRACKING DRIVE
IC107 NJM4558M (1/2)
IC107 NJM4558M (2/2)
FOCUS DRIVE AMP
TRACKING DRIVE AMP
UNREG GND
IC106 SWITCH
IC106 TC4053BFH8 (1/3)
IC106 (2/3)
IC106 (3/3)
LD TRACKING GAIN
LD FOCUS GAIN
TRACKING EQ. AMP
FOCUS EQ. AMP
IC108 SLED DRIVE
IC108 NJM4558M (1/2)
IC108 NJM4558M (2/2)
SLED DRIVE AMP
TILT DRIVE AMP
IC103 BUFF
IC103 NJM4558M (2/2)
IC103 (1/2)
TRACKING ERR AMP
FOCUS ERROR AMP
IC104 ADD
IC104 NJM4558M (1/2)
IC104 (2/2)
CD RF L REVEL
IC111 NJM4558M (1/2)
IC111 (2/2)
IC111
TILT ERROR
TILT ERR AMP
RAD TILT
TRK BAL
CD RF H LEVEL
RF AMP
RF BUFF
LD FCS BAL
CD FCS BAL
IC102 SERVO
IC102 HA11529
Q104 2SC1623
Q105 2SC1623
Q106 2SC1623
Q107 DTC124EK
Q101 DTA124EK
Q102 DTC124EK
Q103 DTC124EK
D101 1SS193
D102 RD3.9EB
D103 1SS119
L101 10μH
L102 10μH
L103 10μH
+16V
-16V
TRKG ERR
FOCUS ERR
TRKG OPEN
LD/CD CDV
4D
C
D
A
B
TCNT
FL
JUMP
FTSLD
RESET
SET DT
SET CK
SERVO CK
TILT ERR
RF
REG +5V
A GND
REG -5V
TRKG M
TRKG RTN
FOCUS RTN
FOCUS M
⑯


TRKG ERR
FOCUS ERR
TRKG ERR
TRKG OPEN
FOCUS ERR
LD/CD. CDV
FOCUS ERROR AMP
REG +5V
A GND
REG -5V
TRKG M
TRKG RTN
FOCUS RTN
FOCUS M
CN105 7P
GND
RF
TRKG ERR (X)
TRKG OPEN
FOCUS ERR (X)
FOCUS ERR (Y)
TRKG ERR (Y)
CN106 6P
F
E
4D
SLED ⊖
SLED ⊕
RF ⊖
CN102 28P
UNREG +16V
UNREG GND
UNREG -16V
A GND
REG +5V
REG -5V
SERVO CK
SPDL FG
INLIMIT/LD
RESET
FTLATCH
MTJ
FL
LD/CD. CDV
LD. CDV/CD
DEFECT
1T JUMP
T CNT
SET DATA
SET CLK
PD1
LD
PD
UNREG GND
RF OUT
TJ MUTE
RF
GND
TO MP-15 BOARD CN602
(See page 75.)
CN101 24P
TILT LED
TILT IN
TILT OUT
TILT GND
VR
PD
GND
LD
A
D
C
B
GND
E
F
GND
RF
VCC (+5V)
N.C.
VEE (-5V)
TRKG M
FOCUS M
FOCUS RTN
TRKG RTN
CN103 6P
SPDL FG
+5V
GND
SLED DRV
TILT DRV
I/O LIMIT
CN104 3P
LD INLIMIT
GND
CD INLIMIT
S903
SLED IN LIMIT SWITCH
LD/CD
-1 (LD)
-2 (CD)
OPTICAL BLOCK
(LD/CD)
TRACIKING COIL
FOCUS COIL
MT-28 BOARD
(TILT MOTOR)
M903
TILT MOTOR
TILT MOTOR
GND
MT-30 BOARD
(SLED MOTOR)
M902
SLED MOTOR
SLED MOTOR
GND
FG-13 BOARD
(SPINDLE FG)
W301
LED (A)
SPDL FG
GND
D301
GP2S09B
CK-14 BOARD
(MOTOR RELAY)
W001 6P
SPDL FG
+5V
GND
SLED DRV
TILT DRV
I/O LIMIT
R001 15k
R002 180
R003 3300
CN002 3P
LED (A)
SPDL FG
GND
CN003 2P
SLED MOTOR
GND
R004 10
C001 0.1
CN004 2P
TILT MOTOR
GND
R005 10
C002 0.1
CN005 2P
OUT LIMIT
OUT LIMIT +5V
R006 180
S902
SLED OUT LIMIT SWITCH
CN001 2P
IN LIMIT
IN LIMIT +5V
R007 3300
S901
SLED IN LIMIT SWITCH

Signal apth

⇛ : PB Y/CHROMA Signal

⇨ : PB ANALOG AUDIO Signal

Tracking servo	➤
Slide servo	▷
Focus servo	▶
TILT SERVO	▷

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

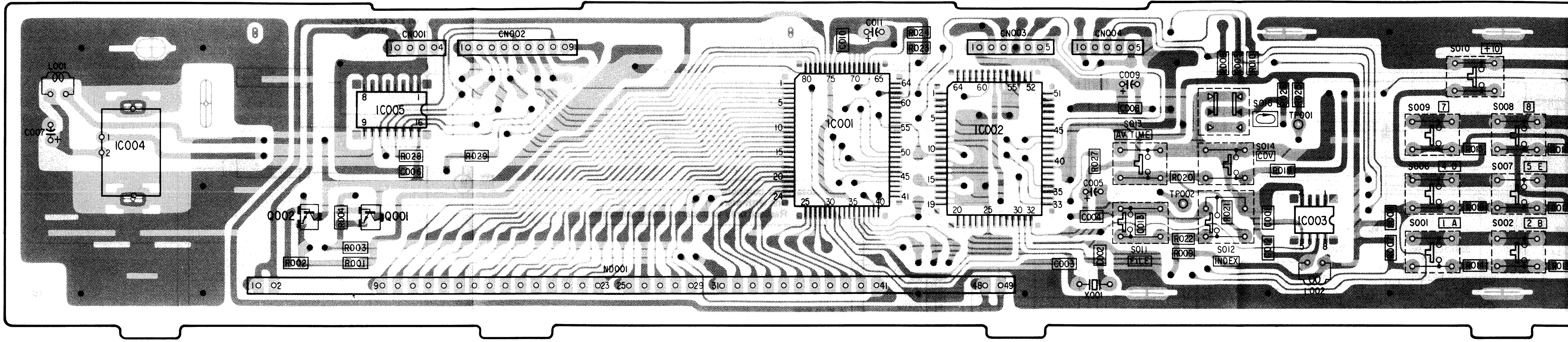
SERVO SERVO

(MDP-315 Model only)

FG-197 (MODE/FUNCTION CONTROL), FP-198 (FUNCTION SWITCH) PRINTED WIRING BOARDS

– Ref. No. FP-197 BOARD: 4,000 Series, FP-198 BOARD: 5,000 Series –

FP-197 BOARD



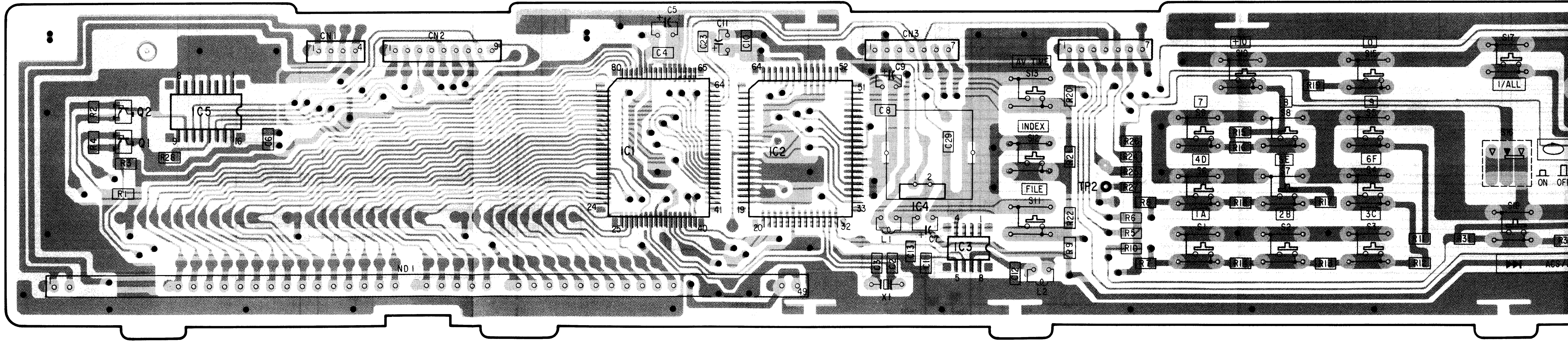
L001
C007
IC004
IC005
Q002
Q001
R004
R003
R001
R002
R028
R029
C006
CN001
CN002
C011
R024
R023
CN003
CN004
IC001
IC002
C009
C008
S013
AV TIME
R027
R020
C005
C004
S011
FILE
R015
R022
R009
C003
C002
X001
TP002
S014
CDV
R018
R021
S012
INDEX
TP001
S016
IC003
L002
S010
+10
S009
7
S008
8
S006
4 D
S007
5 E
S001
1 A
S002
2 B
ND001

(MDP-515D Model only)

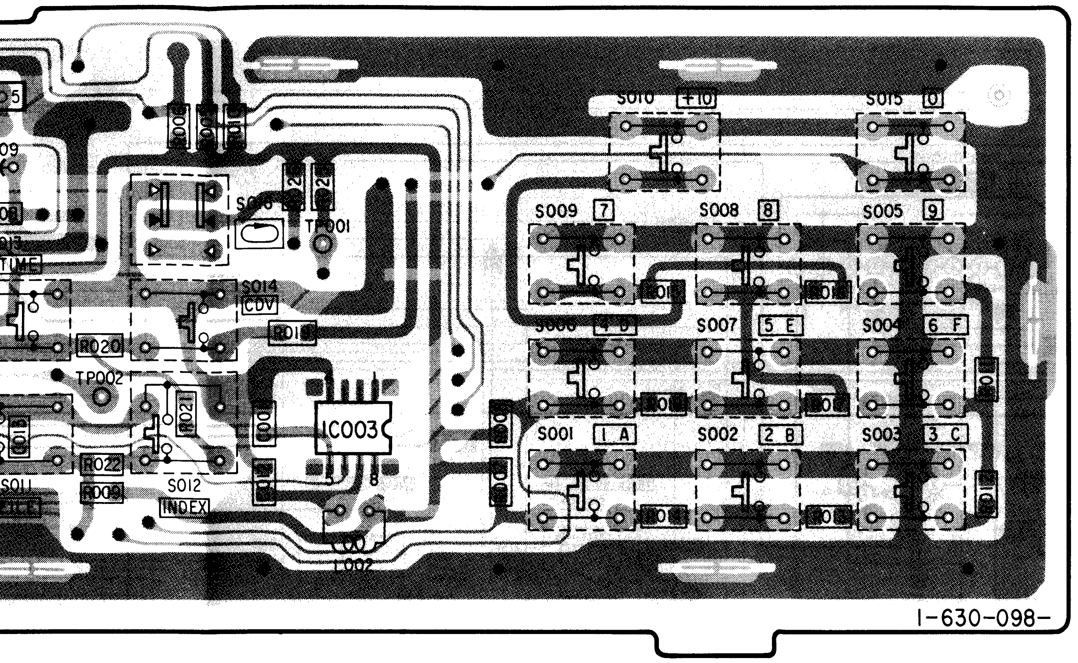
FP-222 (MODE/FUNCTION CONTROL), FP-223 (FUNCTION SWITCH) PRINTED WIRING BOARDS

– Ref. No. FP-222 BOARD: 4,000 Series, FP-223 BOARD: 5,000 Series –

FP-222 BOARD

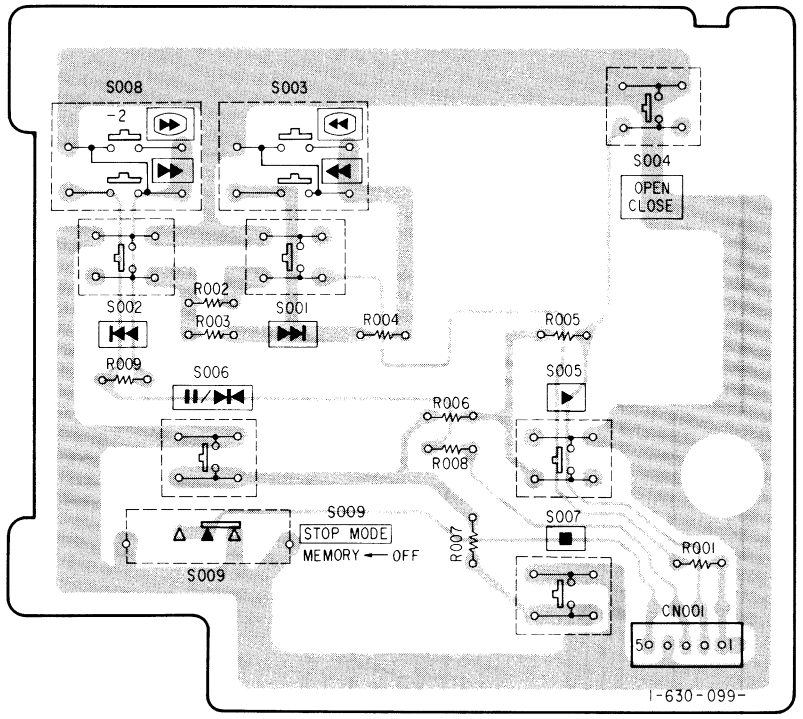


CN1
CN2
C5
C4
C23
C11
C10
CN3
IC5
Q2
Q1
R2
R4
R3
R1
R26
C6
IC1
IC2
C9
C8
C29
IC4
IC3
L1
C7
X1
L2
AV TIME
S13
INDEX
S12
FILE
S11
R20
R21
R22
R9
TP2
R6
R5
R10
R7
+10
0
S17
1/ALL
7
8
9
4D
5E
6F
1A
2B
3C
S1
S2
S3
ON
ND1

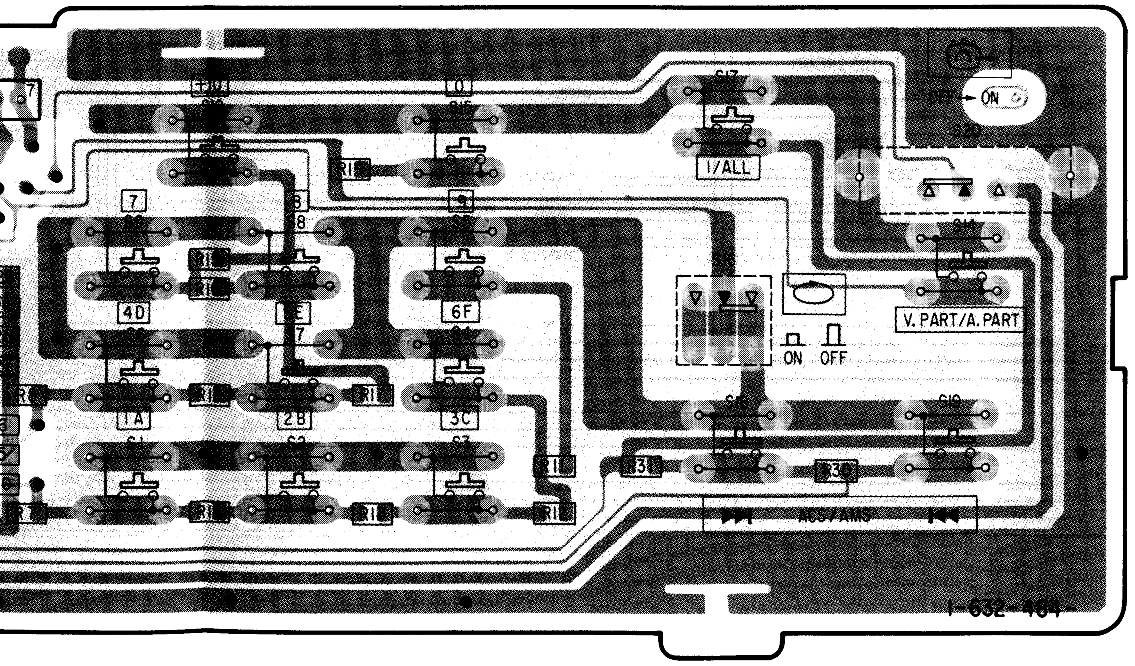

S010 +10
S015 0
S016
TP001
S009 7
S008 8
S005 9
S014
CDV
S006 4 D
S007 5 E
S004 6 F
R020
TP002
R021
IC003
S001 1 A
S002 2 B
S003 3 C
S011
S012
INDEX
R022
R009
TIME
L002
1-630-098-

12

FP-198 BOARD (CONDUCTOR SIDE)

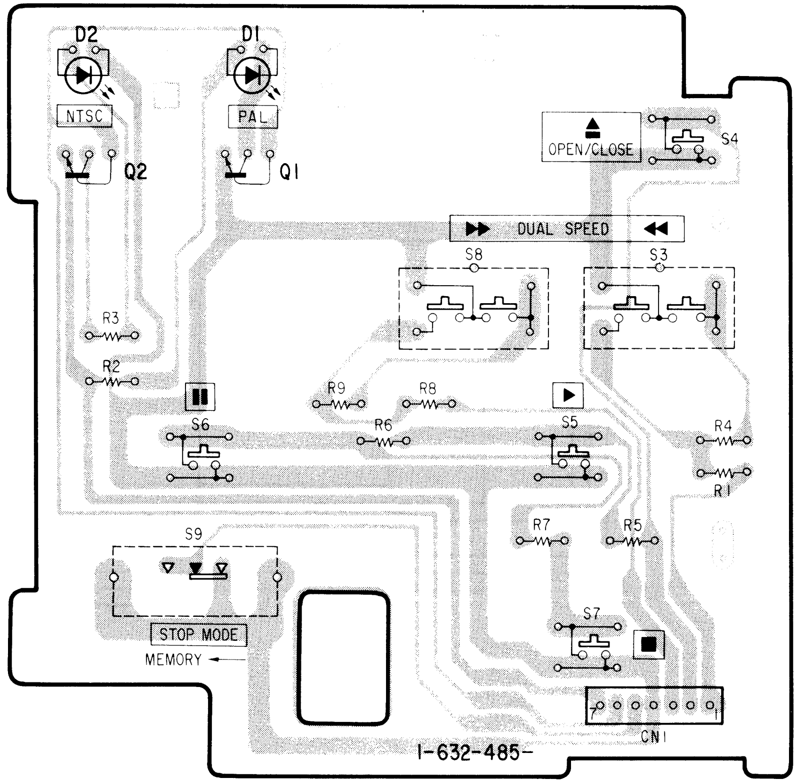

S008
S003
-2
S004
OPEN
CLOSE
S002
R002
R003
S001
R004
R005
R009
S006
II/▶◀
S005
R006
R008
S009
STOP MODE
MEMORY ← OFF
R007
S007
R001
CN001
5
1
1-630-099-

13


+10
0
I/ALL
OFF → ON
7
8
9
4D
5E
6F
V. PART/A. PART
ON
OFF
1A
2B
3C
AMS/AMS
1-632-484-

11

FP - 223 BOARD (CONDUCTOR SIDE)

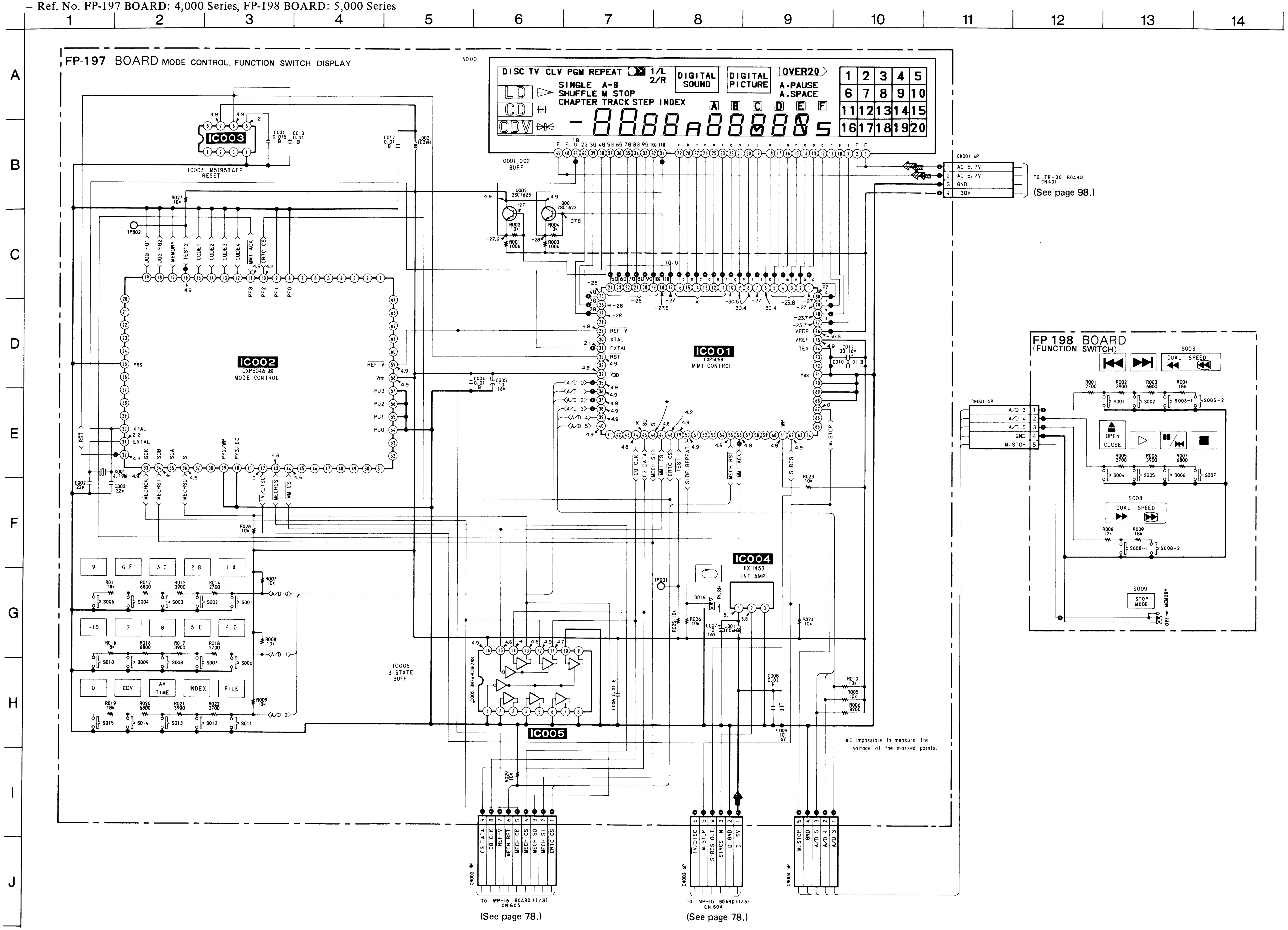

D2
D1
NTSC
PAL
Q2
Q1
OPEN/CLOSE
S4
DUAL SPEED
S8
S3
R3
R2
R9
R8
R6
S6
S5
R4
R1
R7
R5
S9
STOP MODE
MEMORY ←
S7
CN1
1-632-485-

11

(MDP-315 Model only)

FP-197 (MODE/FUNCTION CONTROL), FP-198 (FUNCTION SWITCH) SCHEMATIC DIAGRAMS

– Ref. No. FP-197 BOARD: 4,000 Series, FP-198 BOARD: 5,000 Series –


FP-197 BOARD MODE CONTROL, FUNCTION SWITCH, DISPLAY
ND001
DISC TV CLV PGM REPEAT 1/L 2/R
SINGLE A-B
SHUFFLE M STOP
CHAPTER TRACK STEP INDEX
DIGITAL SOUND
DIGITAL PICTURE
OVER20
A-PAUSE
A.SPACE
LD
CD
CDV
IC003
IC003 M51953AFP RESET
Q001, 002 BUFF
Q001 2SC1623
Q002 2SC1623
IC002
CXP5046 (8) MODE CONTROL
IC001
CXP5058 MMI CONTROL
IC004
BX1453 INF AMP
IC005
IC005 3 STATE BUFF
IC005 SN74HC367NS
X001 4.19M
TP001
TP002
S016
PUSH
CN001 4P
AC 5.7V
AC 5.7V
GND
-30V
TO TR-30 BOARD CN401
CN002 9P
CG DATA
CG CLK
REF-V
MECH RST
MECH CS
MECH CK
MECH SO
MECH SI
CRTC CS
TO MP-15 BOARD (1/3) CN605
CN003 6P
TV/DISC
M.STOP
SIRCS OUT
SIRCS IN
D GND
D 5V
TO MP-15 BOARD (1/3) CN604
CN004 5P
M.STOP
GND
A/D 5
A/D 4
A/D 3
9
6 F
3 C
2 B
1 A
+10
7
8
5 E
4 D
0
CDV
AV TIME
INDEX
FILE
S001
S002
S003
S004
S005
S006
S007
S008
S009
S010
S011
S012
S013
S014
S015
FP-198 BOARD (FUNCTION SWITCH)
CN001 5P
DUAL SPEED
OPEN CLOSE
STOP MODE
OFF → MEMORY
S003-1
S003-2
S008-1
S008-2

(See page 98.)

(See page 78.)

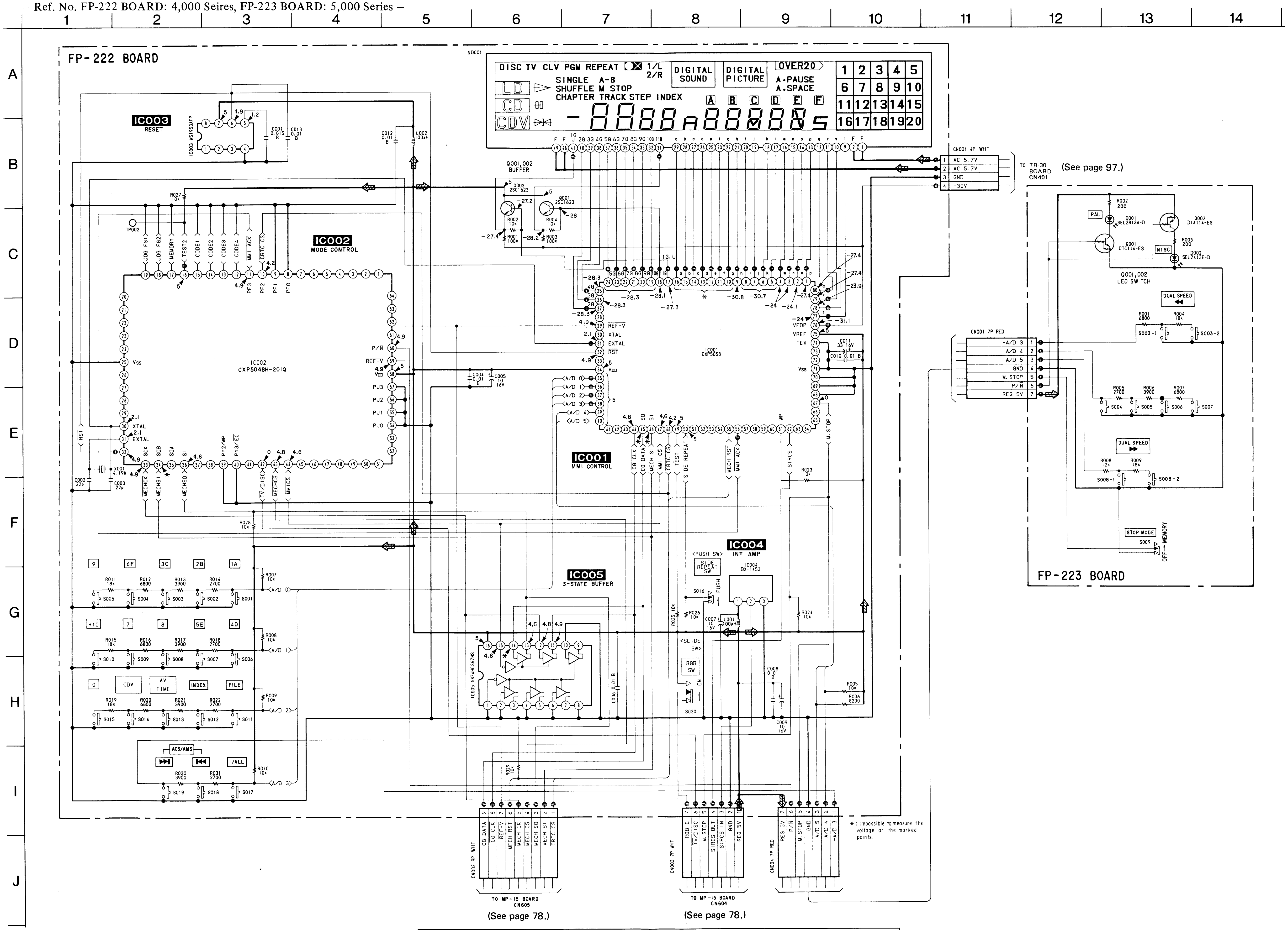
(See page 78.)

*: Impossible to measure the voltage at the marked points.

(MDP-515 Model only)

FP-222 (MODE/FUNCTION CONTROL), FP-223 (FUNCTION SWITCH) SCHEMATIC DIAGRAMS

– Ref. No. FP-222 BOARD: 4,000 Seires, FP-223 BOARD: 5,000 Series –



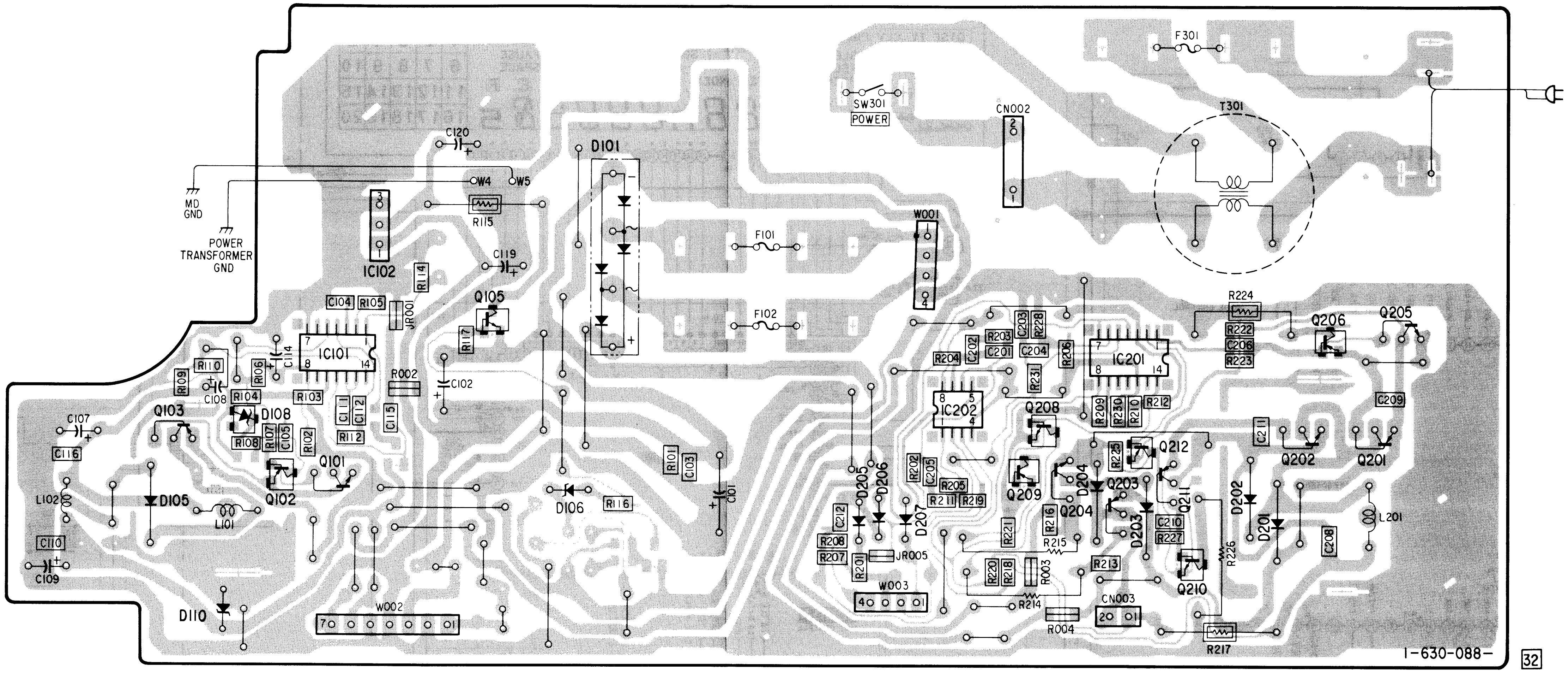
1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
FP-222 BOARD
ND001
DISC TV CLV PGM REPEAT 1/L 2/R
SINGLE A-B
SHUFFLE M STOP
CHAPTER TRACK STEP INDEX
DIGITAL SOUND
DIGITAL PICTURE
OVER20
A.PAUSE
A.SPACE
LD
CD
CDV
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
IC003
RESET
IC003 M51953AFP
IC002
MODE CONTROL
IC002 CXP5048H-201Q
IC001
MMI CONTROL
IC001 CXP5058
IC004
INF AMP
IC004 BX-1453
IC005
3-STATE BUFFER
IC005 SN74HC367NS
Q001,002 BUFFER
Q002 2SC1623
Q001 2SC1623
TP002
X001 4.19M
JOG FG1
JOG FG2
MEMORY
TEST2
CODE1
CODE2
CODE3
CODE4
MMI ACK
CRTC CS
PF3
PF2
PF1
PF0
Vss
XTAL
EXTAL
RST
SCK
SQB
SQA
SI
PY2/WP
PY3/EC
P/N
REF-V
VDD
PJ3
PJ2
PJ1
PJ0
MECHCK
MECHSI
MECHSO
TV/DISC
MECHCS
MMICS
CG CLK
CG DATA
MECH SI
MMI CS
CRTC CS
TEST
SIDE REPEAT
MECH RST
MMI ACK
SIRCS
M.STOP
VFDP
VREF
TEX
A/D 0
A/D 1
A/D 2
A/D 3
A/D 4
A/D 5
9
6F
3C
2B
1A
+10
7
8
5E
4D
0
CDV
AV TIME
INDEX
FILE
ACS/AMS
I/ALL
S001
S002
S003
S004
S005
S006
S007
S008
S009
S010
S011
S012
S013
S014
S015
S017
S018
S019
<PUSH SW>
SIDE REPEAT SW
S016
PUSH
<SLIDE SW>
RGB SW
ON
S020
CN001 4P WHT
AC 5.7V
AC 5.7V
GND
-30V
TO TR-30 BOARD CN401
(See page 97.)
CN002 9P WHT
CG DATA
CG CLK
REF-V
MECH RST
MECH CK
MECH CS
MECH SO
MECH SI
CRTC CS
TO MP-15 BOARD CN605
(See page 78.)
CN003 7P WHT
RGB C
TV/DISC
M.STOP
SIRCS OUT
SIRCS IN
GND
REG 5V
TO MP-15 BOARD CN604
(See page 78.)
CN004 7P RED
REG 5V
P/N
M.STOP
GND
A/D 5
A/D 4
-A/D 3
* : Impossible to measure the voltage at the marked points.
CN001 7P RED
-A/D 3
A/D 4
A/D 5
GND
M.STOP
P/N
REG 5V
PAL
NTSC
D001 SEL2813A-D
D002 SEL2413E-D
Q001 DTC114-ES
Q002 DTA114-ES
Q001,002 LED SWITCH
DUAL SPEED
STOP MODE
S009
OFF
MEMORY
FP-223 BOARD

FUNCTION DISPLAY FUNCTION DISPLAY

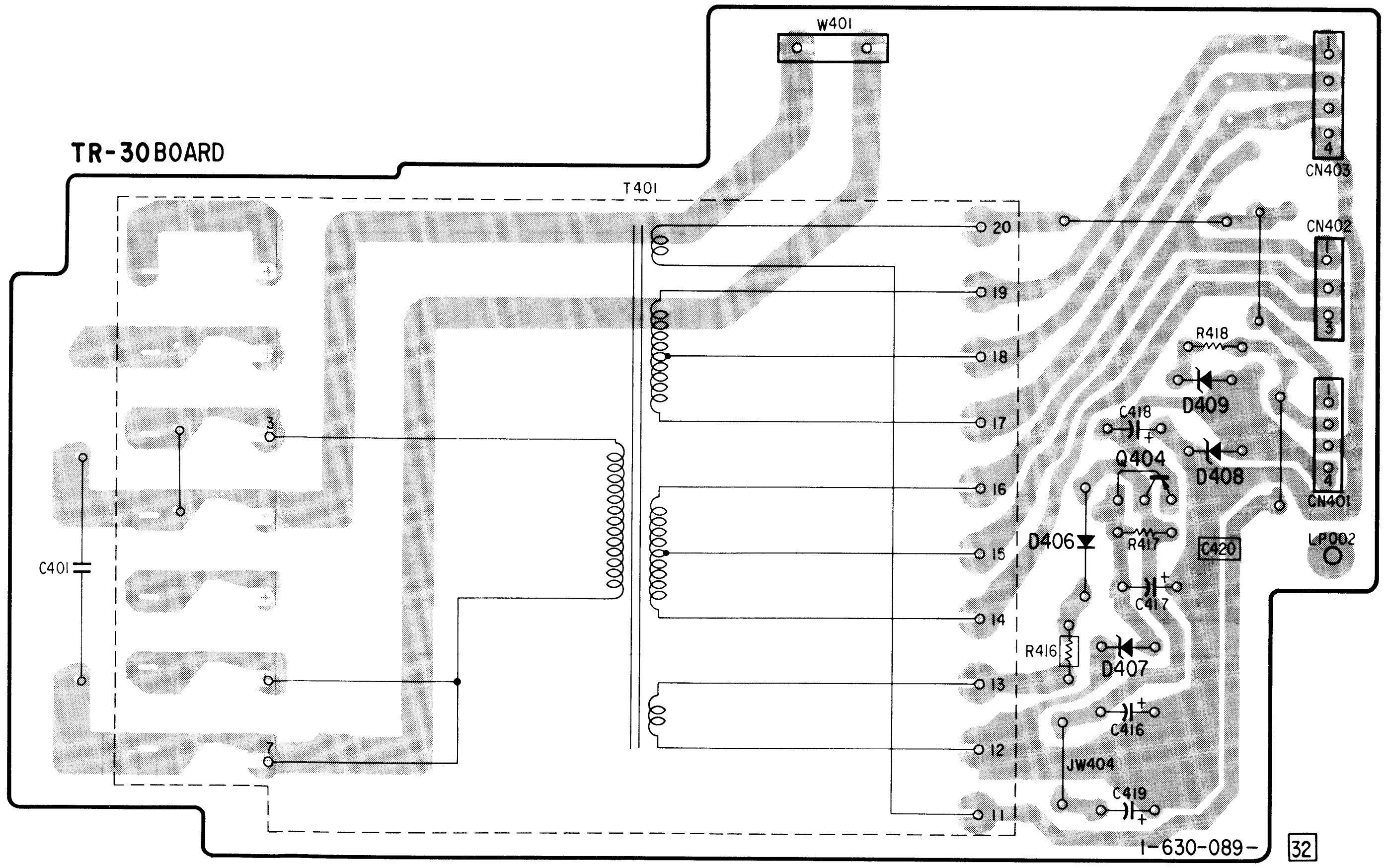
PS-193 (POWER SUPPLY, SPINDLE SERVO), TR-30 (POWER TRANSFORMER) PRINTED WIRING BOARDS

– Ref. No. PS-193 BOARD: 2,000 Series, TR-30 BOARD: 3,000 Series –

PS-193 BOARD

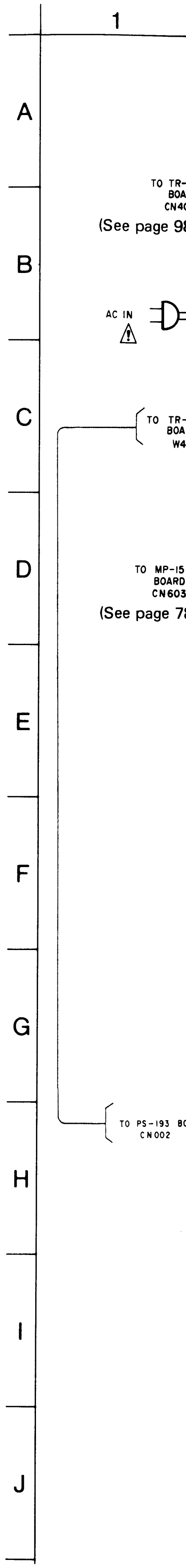

SW301
POWER
CN002
F301
T301
AC IN
C120
D101
W4
W5
MD GND
POWER TRANSFORMER GND
R115
IC102
F101
W001
C119
R114
C104
R105
JR001
Q105
F102
R224
Q206
Q205
R222
C206
R223
IC101
R110
R106
C114
R109
C108
R104
R103
R002
C102
R117
C107
Q103
D108
R108
R107
C105
R102
C111
C112
R112
C115
C116
Q101
Q102
L102
D105
L101
D106
R116
R101
C103
C101
C110
C109
D110
W002
C203
R228
R203
C202
C201
C204
R204
R206
IC201
R231
IC202
Q208
R209
R230
R210
R212
C209
C211
Q202
Q201
D205
D206
D207
C212
R208
R207
R201
C205
R202
R205
R211
R219
Q209
D204
R225
Q203
Q212
D203
Q211
D202
D201
L201
C208
R216
R215
C210
R227
R221
JR005
W003
R220
R218
R003
R214
R213
CN003
R226
Q210
R004
R217
1-630-088-
32

TR-30 BOARD


W401
T401
CN403
CN402
20
19
18
17
16
15
14
13
12
11
3
7
C401
R418
D409
C418
Q404
D408
CN401
D406
R417
C420
LP002
C417
R416
D407
C416
JW404
C419
1-630-089-
32

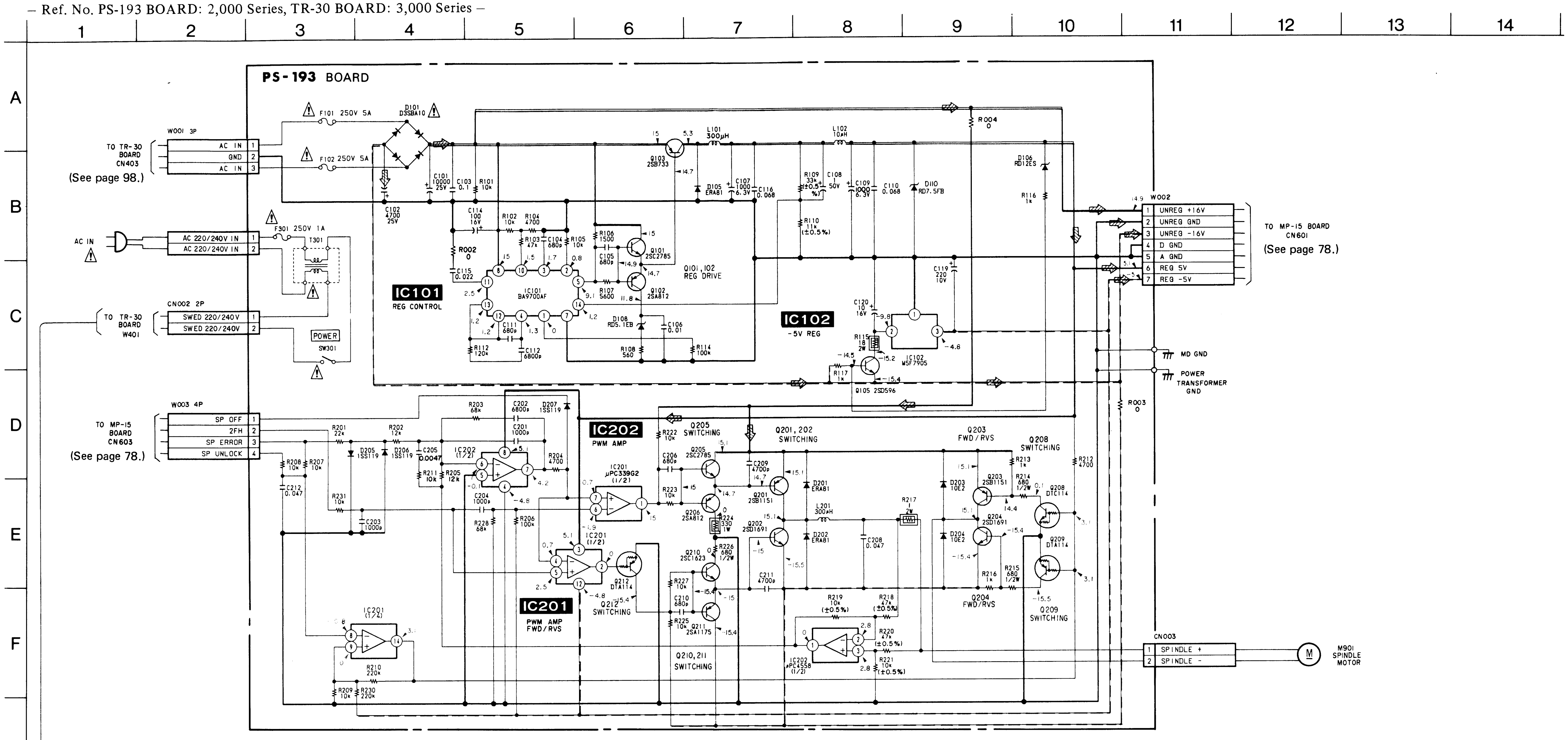
PS-193 (POWER

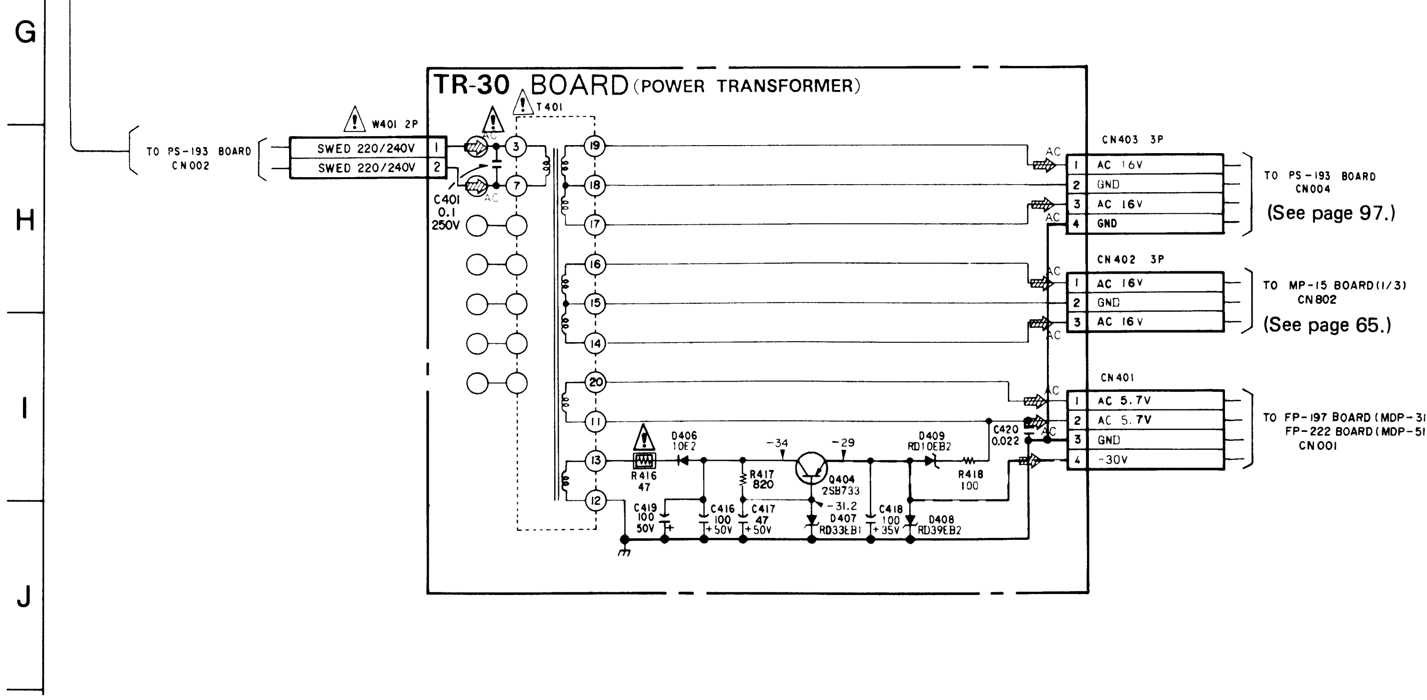
– Ref. No. PS-19


1
A
B
C
D
E
F
G
H
I
J
TO TR-
BOA
CN40
(See page 9
AC IN
TO TR-
BOA
W4
TO MP-15
BOARD
CN603
(See page 7
TO PS-193 BO
CN002

PS-193 (POWER SUPPLY, SPINDLE SERVO), TR-30 (POWER TRANSFORMER) SCHEMATIC DIAGRAMS

– Ref. No. PS-193 BOARD: 2,000 Series, TR-30 BOARD: 3,000 Series –

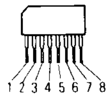

1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
PS-193 BOARD
TO TR-30 BOARD CN403
(See page 98.)
W001 3P
AC IN
GND
AC IN
F101 250V 5A
F102 250V 5A
D101 D3SBA10
C101 10000 25V
C102 4700 25V
C103 0.1
R101 10k
AC IN
AC 220/240V IN
F301 250V 1A
T301
CN002 2P
TO TR-30 BOARD W401
SWED 220/240V
POWER
SW301
Q103 2SB733
L101 300μH
L102 10μH
D105 ERA81
C107 1000 6.3V
C116 0.068
R109 33k (±0.5%)
C108 1 50V
C109 1000 6.3V
C110 0.068
D110 RD7.5FB
D106 RD12ES
R116 1k
R004 0
C114 100 16V
R102 10k
R104 4700
R103 4.7k
C104 680p
R105 10k
R106 1500
C105 680p
Q101 2SC2785
Q102 2SA812
Q101, 102 REG DRIVE
R107 5600
R110 11k (±0.5%)
R002 0
C115 0.022
IC101 REG CONTROL
IC101 BA9700AF
C111 680p
C112 6800p
R112 120k
D108 RD5.1EB
C106 0.01
R108 560
R114 100k
IC102 -5V REG
IC102 M5F7905
C119 220 10V
C120 10 16V
R115 18 2W
R117 1k
Q105 2SD596
W002
UNREG +16V
UNREG GND
UNREG -16V
D GND
A GND
REG 5V
REG -5V
TO MP-15 BOARD CN601
(See page 78.)
MD GND
POWER TRANSFORMER GND
R003 0
W003 4P
TO MP-15 BOARD CN603
(See page 78.)
SP OFF
2FH
SP ERROR
SP UNLOCK
R201 22k
R202 12k
R203 68k
C202 6800p
D207 1SS119
C201 1000p
D205 1SS119
D206 1SS119
C205 0.0047
IC202 (1/2)
R204 4700
R208 10k
R207 10k
R211 10k
R205 12k
C212 0.047
R231 10k
C204 1000p
C203 1000p
R228 68k
R206 100k
IC202 PWM AMP
IC201 μPC339G2 (1/2)
IC201 (1/2)
IC201 PWM AMP FWD/RVS
Q212 DTA114
Q212 SWITCHING
IC201 (1/4)
R210 220k
R209 10k
R230 220k
Q205 SWITCHING
R222 10k
C206 680p
Q205 2SC2785
R223 10k
Q206 2SA812
R224 330 1W
R226 680 1/2W
Q210 2SC1623
R227 10k
C210 680p
R225 10k
Q211 2SA1175
Q210, 211 SWITCHING
Q201, 202 SWITCHING
C209 4700p
Q201 2SB1151
D201 ERA81
Q202 2SD1691
D202 ERA81
L201 300μH
C211 4700p
C208 0.047
R217
R219 10k (±0.5%)
R218 47k (±0.5%)
R220 47k (±0.5%)
R221 10k (±0.5%)
IC202 μPC4558 (1/2)
Q203 FWD/RVS
Q208 SWITCHING
R213 1k
R212 4700
D203 10E2
Q203 2SB1151
R214 680 1/2W
Q208 DTC114
Q204 2SD1691
D204 10E2
Q209 DTA114
R216 1k
R215 680 1/2W
Q204 FWD/RVS
Q209 SWITCHING
CN003
SPINDLE +
SPINDLE -
M901 SPINDLE MOTOR


H
I
J
TR-30 BOARD (POWER TRANSFORMER)
T401
W401 2P
TO PS-193 BOARD CN002
SWED 220/240V
C401 0.1 250V
AC
CN403 3P
AC 16V
GND
AC 16V
GND
TO PS-193 BOARD CN004
(See page 97.)
CN402 3P
AC 16V
GND
AC 16V
TO MP-15 BOARD (1/3) CN802
(See page 65.)
CN401
AC 5.7V
AC 5.7V
GND
-30V
TO FP-197 BOARD (MDP-315) FP-222 BOARD (MDP-515D) CN001
(See page 92.)
(See page 94.)
R416 47
D406 10E2
R417 820
Q404 2SB733
D409 RD10EB2
C420 0.022
R418 100
C419 100 50V
C416 100 50V
C417 47 50V
D407 RD33LB1
C418 100 35V
D408 RD39EB2

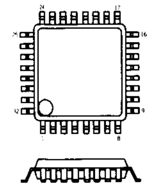
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

SEMICONDUCTORS

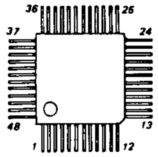
CX20061



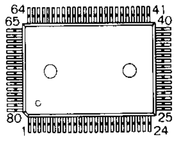
CXA1081Q



CXA1254Q
CXA1255Q
CXD1152

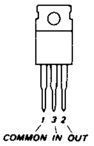

36
25
37
24
48
13
1
12

CXD1165Q
CXP5058H
MB89795-119

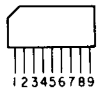

64
41
65
40
80
25
1
24

MARKING SIDE VIEW

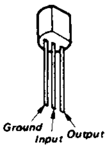
M5F7905
M5F7912


1 3 2
COMMON IN OUT

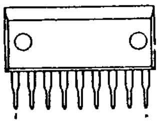
NJM45605-D



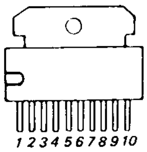
NJM79L05A


Ground
Input
Output

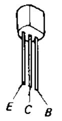
STA-451C



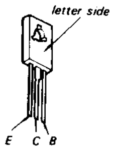
TA7291P


1 2 3 4 5 6 7 8 9 10

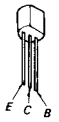
2SB740



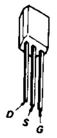
2SB1151


letter side
E C B

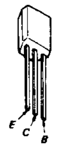
2SD655-E



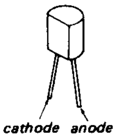
2SK669



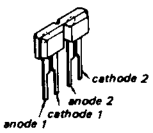
DTA114ES
DTC114ES



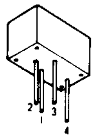
FC52M-5


cathode anode

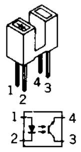
KV1236D


cathode 2
anode 2
cathode 1
anode 1

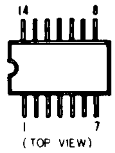
SEL2413E



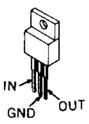
SEL2813A-D



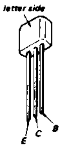
CXP5048H
CXP5048H-DCX


14
8
1
7
(TOP VIEW)

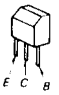
M5F7805
M5F7812



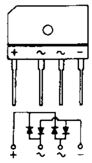
2SA1175-HFE
2SC2785-HFE


letter side
E C B

2SB733-2
2SB733-4
2SB734-34



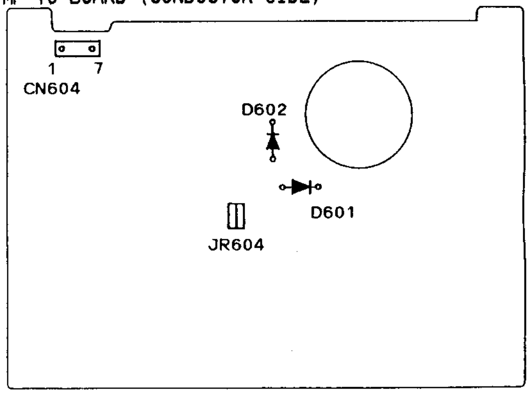
D3SBA10



Precautions for replacementof MP-15 BOARD

As a repair part of MP-15 BOARD only MP-15 BOARD for the MDP-515D is supplied. To mount this type board on the MDP-315, the following arragement should be made:

MP-15 BOARD (CONDUCTOR SIDE)


1 7
CN604
D602
D601
JR604

1. Plug the connector from FP-197 BOARD into CN604 aligning ① -pin sides of them.
2. Remove D601 and D602.
3. Mount JR604 (0Ω).

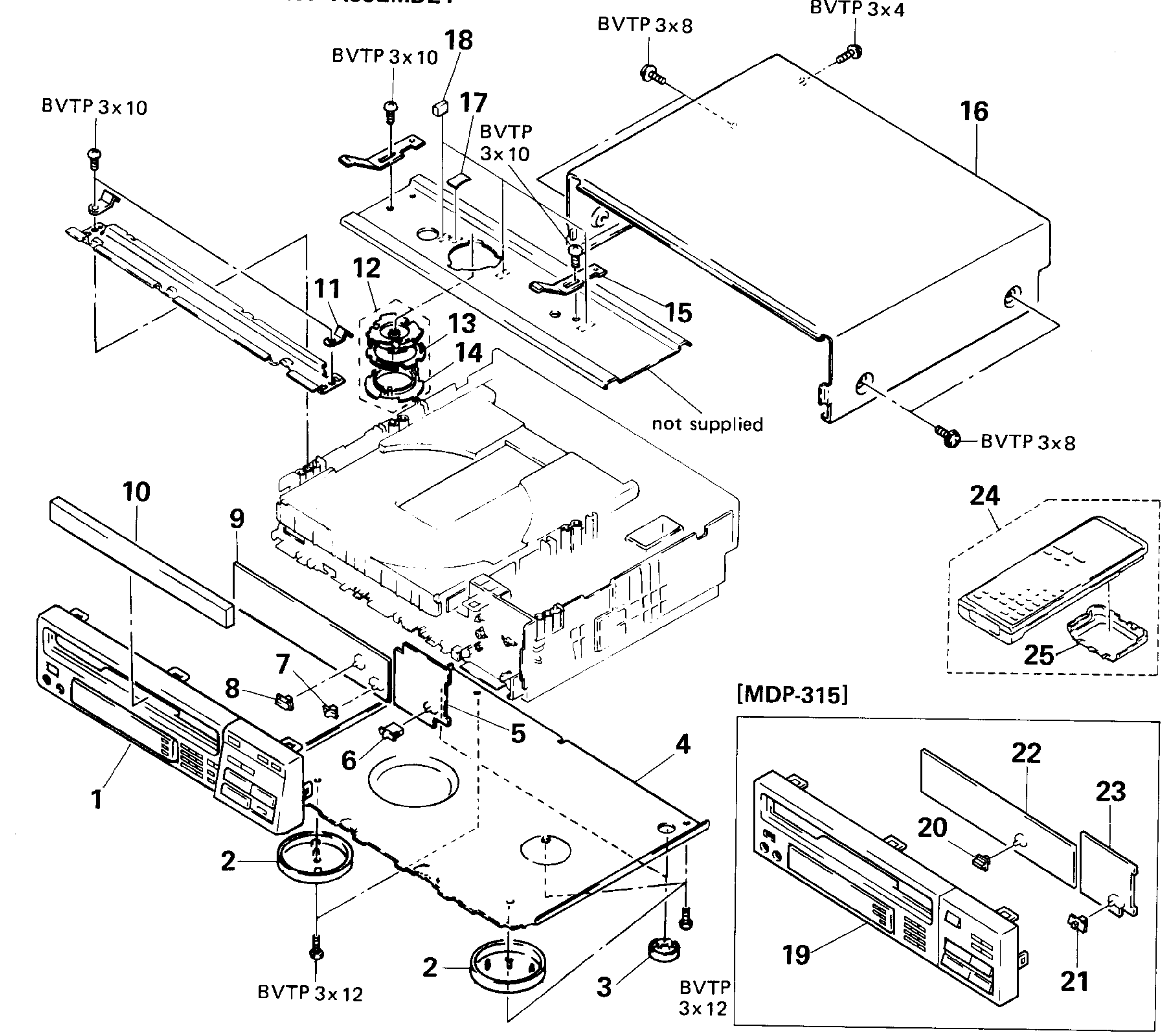
SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

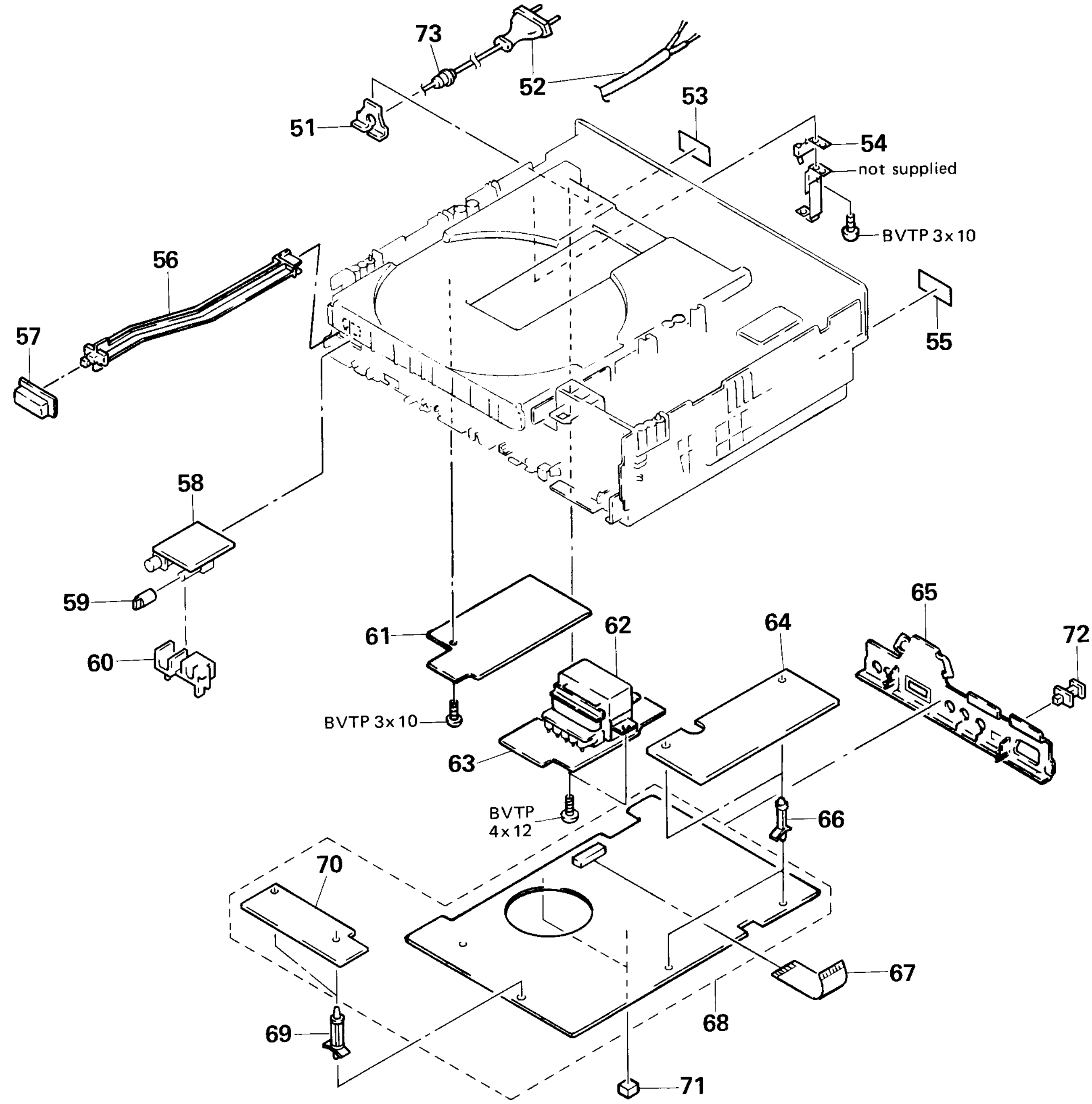
5-1. EXTERIOR ORNAMENT ASSEMBLY



No.	Part No.	Description	Remark
1	X-3735-036-1	PANEL ASSY, FRONT (MDP-515D)	
2	X-3735-007-1	FOOT ASSY (L)	
3	X-3318-955-1	FOOT ASSY (S)	
4	*3-735-075-01	PLATE, BOTTOM	
5	*A-6421-375-A	FP-223 BOARD, COMPLETE (MDP-515D)	
6	3-737-464-01	CAP, M/ST (MDP-515D)	
7	3-737-418-01	KNOB, M.STOP (MDP-515D)	
8	3-737-425-01	KNOB, A/REPEAT (MDP-515D)	
9	*A-6421-374-A	FP-222 BOARD, COMPLETE (MDP-515D)	
10	3-737-467-01	COVER, TRAY	
11	3-735-090-01	SPRING	
12	X-3735-006-1	PLATE ASSY, PRESS	13, 14
13	3-735-011-01	SPRING	

No.	Part No.	Description	Remark
14	3-735-010-01	PLATE (1), PRESS	
15	3-735-089-01	SPRING	
16	*3-735-065-01	CASE, UPPER	
17	*3-737-454-01	SHEET, HOLDER	
18	*9-911-842-XX	CUSHION	
19	X-3735-037-1	PANEL ASSY, FRONT (MDP-315)	
20	3-735-045-01	KNOB, A/REPEAT (MDP-315)	
21	3-735-004-01	KNOB, M.STOP (MDP-315)	
22	*A-6421-368-A	FP-197 BOARD, COMPLETE (MDP-315)	
23	*1-630-099-11	FP-198 BOARD (MDP-315)	
24	1-465-161-31	REMOTE COMMANDER (RMT-515D)	25
25	3-707-584-01	LID, BATTERY	

5-2. FRAME ASSEMBLY (1)

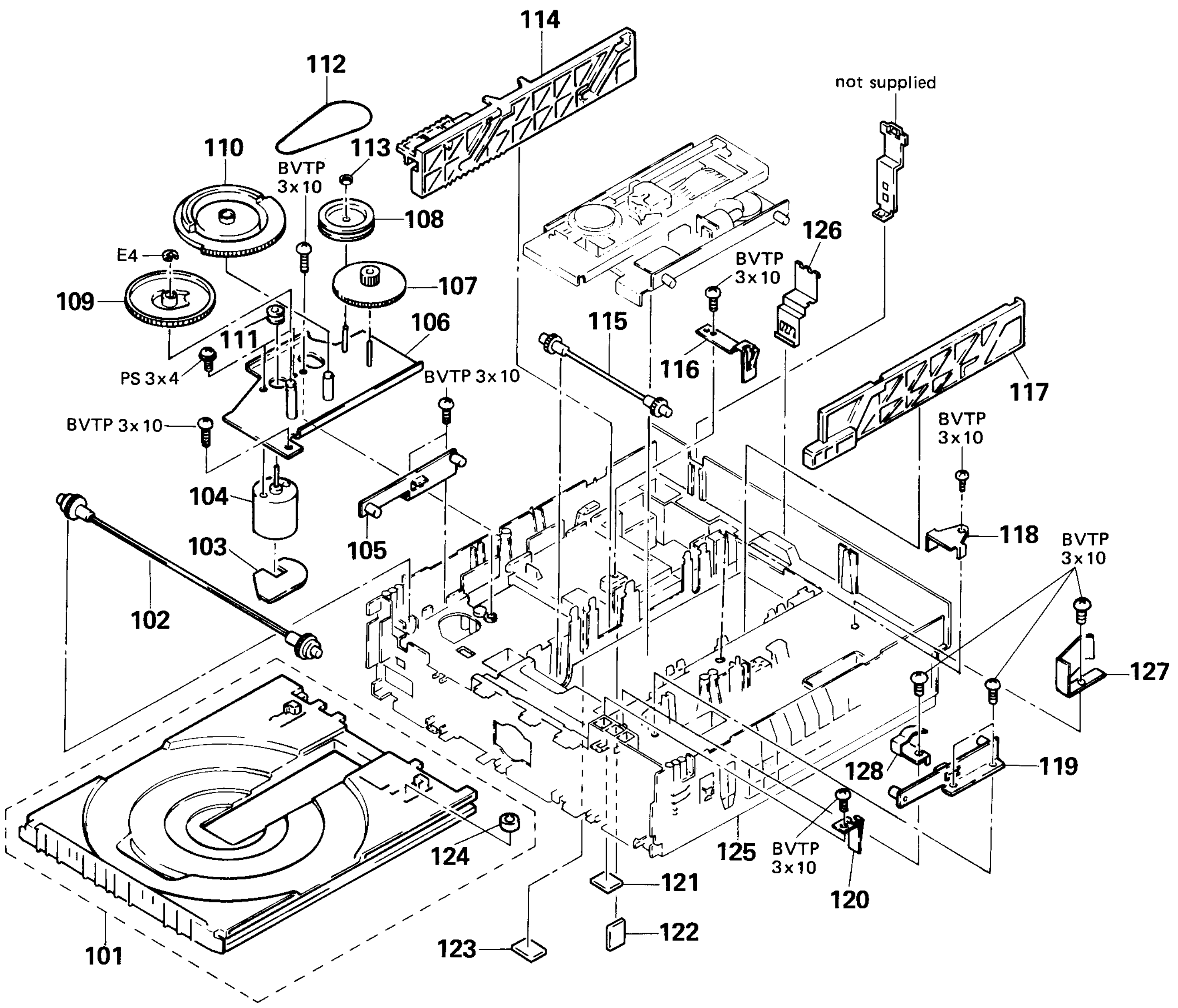


No.	Part No.	Description	Remark
51	*3-737-438-01	BRACKET, AC CORD	
52	⚠.1-551-908-61	CORD, POWER, EULO PLUG (AEP MODEL)	
	⚠.1-551-884-32	CORD, POWER (AUS MODEL)	
53	*3-737-462-11	LABEL, MODEL NUMBER (MDP-515D)(AEP MODEL)	
	*3-737-474-11	LABEL, MODEL NUMBER (MDP-315)	
	*3-737-486-01	LAVEL, MODEL NUMBER (AUS MODEL)	
54	3-735-091-01	SPRING	
55	*4-885-838-00	LABEL, CLASS 1	
56	3-735-050-01	LEVER, POWER SW	
57	3-735-051-01	BUTTON, POWER	
58	*1-630-090-11	HP-50 BOARD	
59	4-922-531-01	KNOB (A TYPE), LOV	
60	3-735-057-01	HOLDER, HP	
61	*A-6421-372-A	PS-193 BOARD, COMPLETE	

No.	Part No.	Description	Remark
62	⚠.1-449-849-11	TRANSFORMER, POWER (T401)	
63	*1-630-089-31	TR-30 BOARD	
64	*A-6421-370-A	RG-6 BOARD, COMPLETE (MDP-515D)	
65	X-3735-034-1	PLATE (P) ASSY, JACK	
66	*3-703-353-08	SUPPORTER, PC BOARD (MDP-515D)	
67	*1-574-755-11	WIRE, FLAT TYPE 28P	
68	*A-6421-369-A	MP-15 BOARD, COMPLETE	70
69	*3-703-353-08	SUPPORTER, PC BOARD	
70	*A-6421-371-A	AF-52 BOARD, COMPLETE	
71	9-911-843-XX	CUSHION	
72	8-759-977-71	COVER, OPTICAL JACK	
73	3-699-708-01	BUSHING, CORD (AUS MODEL)	

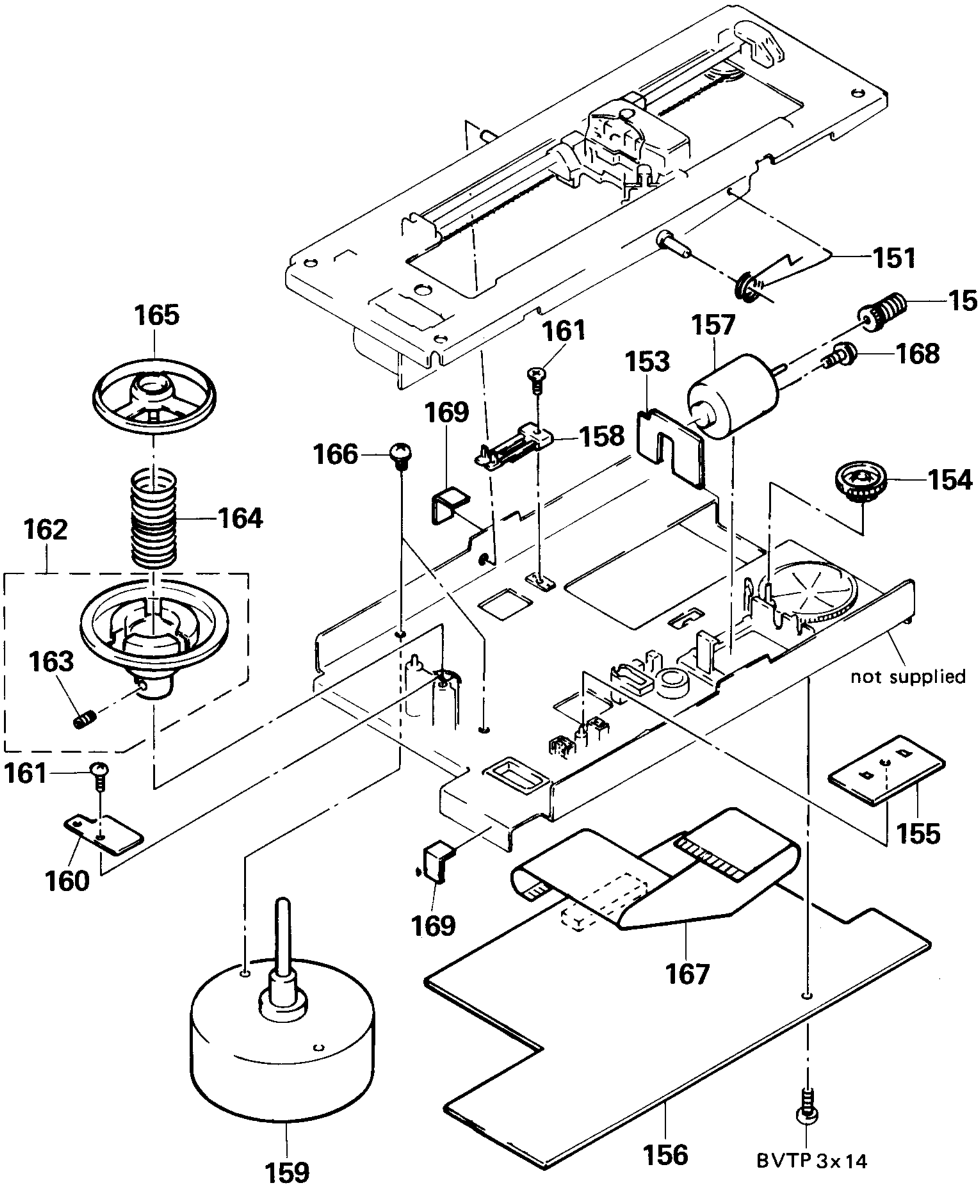
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

5-3. FRAME ASSEMBLY (2)


114
112
not supplied
110
BVTP 3x10
113
108
126
E4
BVTP 3x10
107
109
111
106
115
PS 3x4
BVTP 3x10
116
117
BVTP 3x10
BVTP 3x10
104
105
118
BVTP 3x10
103
102
127
128
119
124
125
BVTP 3x10
121
120
101
123
122

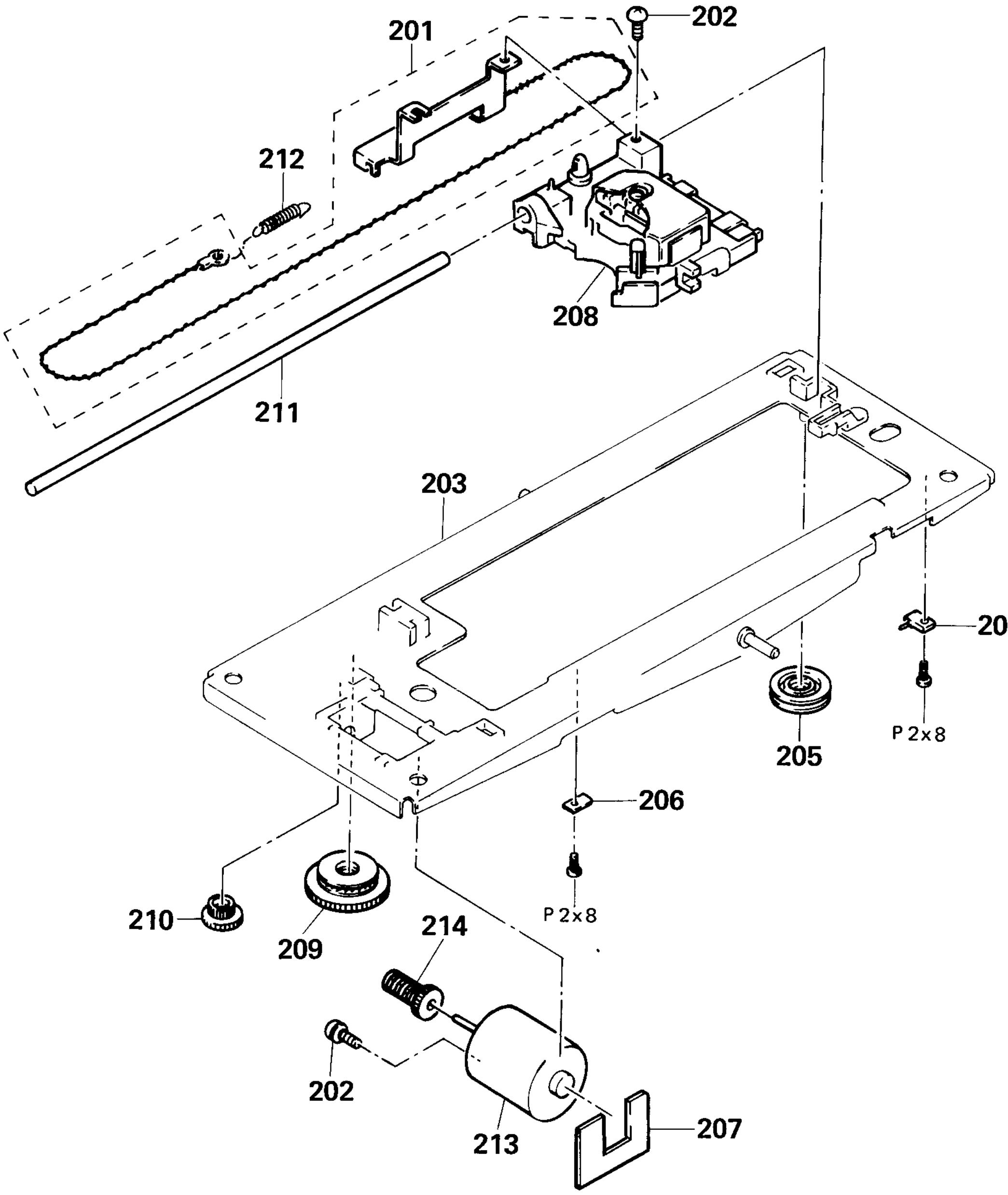
No.	Part No.	Description	Remark
101	X-3735-032-2	TRAY ASSY	124
102	X-3735-009-1	GEAR ASSY, PHASE	
103	*1-630-101-11	MT-29 BOARD	
104	1-541-309-11	MOTOR, DC (RF-370C) (LOADING) (M904)	
105	X-3735-021-1	GUIDE ASSY (LEFT), TRAY	
106	*X-3735-002-1	BASE ASSY, THREADING	
107	3-735-037-01	GEAR, MIDWAY	
108	3-735-036-01	PULLEY (A)	
109	3-735-035-01	GEAR, TRAY	
110	3-735-056-01	CAM, DRIVING	
111	3-713-318-01	PULLEY, MOTOR	
112	3-513-066-XX	BELT, FAST FORWARD	
113	3-669-595-00	WASHER (2), STOPPER	
114	3-735-053-01	RACK (LEFT)	
115	X-3735-008-1	GEAR ASSY, MD PHASE	
116	3-737-401-01	SPRING (1)	
117	3-735-052-01	RACK (RIGHT)	
118	*3-737-415-01	RETAINER, RACK	
119	X-3735-022-1	GUIDE ASSY (RIGHT), TRAY	
120	3-737-402-01	SPRING (2)	
121	*1-630-092-11	SW-106 BOARD	
122	*1-630-093-11	SW-107 BOARD	
123	*1-630-091-11	LS-17 BOARD	
124	*4-914-248-01	STOPPER, RUBBER	
125	*3-735-071-51	FRAME	
126	*3-737-414-01	PLATE, GROUND, RF	
127	3-737-412-01	SPRING, LEAF	
128	3-737-448-01	SPRING, LEAF	

5-4. MD CHASSIS ASSEMBLY (1)


151
152
165
161
157
168
153
169
158
166
154
164
162
163
not supplied
161
155
160
169
167
159
156
BVTP 3x14

No.	Part No.	Description	Remark
151	3-735-021-01	SPRING, TORSION	
152	3-735-038-01	GEAR, WORM	
153	*1-631-095-11	MT-30 BOARD	
154	3-735-025-01	GEAR, SKEW	
155	*1-630-094-11	CK-14 BOARD	
156	*A-6421-311-A	SV-33 BOARD, COMPLETE	
157	1-541-659-11	MOTOR, DC (TILT) (M903)	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD)(S903)	
159	1-541-665-11	MOTOR, SPINDLE (M901)	
160	*1-630-096-11	FG-13 BOARD	
161	3-719-845-11	SCREW (B2X8), TAPPING	
162	X-3735-003-1	TURNTABLE ASSY	163
163	3-701-506-01	SET SCREW, DOUBLE POINT 3X4	
164	3-735-026-01	SPRING, COMPRESSION	
165	X-3735-004-1	GUIDE ASSY, CENTER	
166	4-606-833-01	SCREW (3X5), + PSW	
167	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
168	3-899-248-01	SCREW (M3X6)	
169	*3-737-413-01	SHEET, TEFLON	

5-5. MD CHASSIS ASSEMBLY (2)



No.	Part No.	Description	Remark
201	X-3735-001-1	WIRE ASSY	
202	3-899-248-01	SCREW (M3X6)	
203	*X-3735-014-1	CHASSIS ASSY	
204	1-570-771-21	SWITCH (SLED OUT LIMIT) (S902)	
205	3-735-017-01	PULLEY, RETURN	
206	1-571-435-11	SWITCH (SLED IN LIMIT) (S901)	
207	*1-630-097-11	MT-28 BOARD	
208	⚠8-848-138-11	DEVICE, OPTICAL KHS-130A	
209	3-735-016-01	PULLEY, DRIVING	
210	3-735-015-01	GEAR, CARRIAGE	
211	*3-735-020-01	SHAFT, CARRIAGE	
212	3-672-430-00	SPRING, TENSION	
213	1-541-659-11	MOTOR, DC (SLED) (M902)	
214	3-735-038-01	GEAR, WORM	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description				Remark
	*A-6421-311-A	SV-33 BOARD, COMPLETE (Ref.No 7.000 Series) **********************				
		CAPACITOR				
C101	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C102	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C103	1-124-584-00	ELECT	100MF	20%	10V	
C104	1-124-584-00	ELECT	100MF	20%	10V	
C106	1-126-160-11	ELECT	1MF	20%	50V	
C121	1-124-242-00	ELECT	33MF	20%	25V	
C122	1-124-242-00	ELECT	33MF	20%	25V	
C123	1-124-584-00	ELECT	100MF	20%	10V	
C124	1-124-584-00	ELECT	100MF	20%	10V	
C125	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C126	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C127	1-126-320-11	ELECT	10MF	20%	16V	
C128	1-136-153-00	FILM	0.01MF	5%	50V	
C129	1-136-173-00	FILM	0.47MF	5%	50V	
C130	1-126-320-11	ELECT	10MF	20%	16V	
C131	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C132	1-130-487-00	MYLAR	0.022MF	5%	50V	
C133	1-130-476-00	MYLAR	0.0027MF	5%	50V	
C135	1-130-486-00	MYLAR	0.018MF	5%	50V	
C136	1-136-169-00	FILM	0.22MF	5%	50V	
C137	1-130-484-00	MYLAR	0.012MF	5%	50V	
C138	1-130-484-00	MYLAR	0.012MF	5%	50V	
C139	1-124-282-00	ELECT	22MF	20%	16V	
C140	1-126-320-11	ELECT	10MF	20%	16V	
C141	1-130-491-00	MYLAR	0.047MF	5%	50V	
C142	1-126-320-11	ELECT	10MF	20%	16V	
C143	1-136-165-00	FILM	0.1MF	5%	50V	
C144	1-130-478-00	MYLAR	0.0039MF	5%	50V	
C145	1-130-486-00	MYLAR	0.018MF	5%	50V	
C146	1-130-483-00	MYLAR	0.01MF	5%	50V	
C147	1-136-169-00	FILM	0.22MF	5%	50V	
C148	1-136-169-00	FILM	0.22MF	5%	50V	
C149	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	
C150	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C151	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C152	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C153	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C154	1-163-115-00	CERAMIC CHIP	82PF	5%	50V	
C155	1-130-475-00	MYLAR	0.0022MF	5%	50V	
C157	1-126-160-11	ELECT	1MF	20%	50V	
C161	1-136-173-00	FILM	0.47MF	5%	50V	
C162	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C163	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C164	1-126-160-11	ELECT	1MF	20%	50V	
C165	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V	
C166	1-124-443-00	ELECT	100MF	20%	10V	

Ref.No	Part No.	Description				Remark
		CONNECTOR				
CN101	1-566-939-11	CONNECTOR, F.P.C 24P				
CN102	1-563-493-11	CONNECTOR, F.P.C 28P				
CN103	1-506-485-11	PIN, CONNECTOR 6P				
CN104	1-506-482-11	PIN, CONNECTOR 3P				
CN104	*1-565-980-11	HOUSING, CONNECTOR(PC BOARD) 9P				
CN105	*1-566-969-11	HOUSING, CONNECTOR(PC BOARD)7P				
CN106	*1-566-968-11	HOUSING, CONNECTOR(PC BOARD)6P				
		DIODE				
D101	8-719-100-05	DIODE 1S2837				
D102	8-719-109-72	DIODE RD3.9ESB2				
D103	8-719-911-19	DIODE 1SS119				
		IC				
IC102	8-759-321-40	IC HA11529				
IC103	8-759-700-43	IC NJM4558M				
IC104	8-759-700-43	IC NJM4558M				
IC106	8-759-208-11	IC TC4053BFHB				
IC107	8-759-700-43	IC NJM4558M				
IC108	8-759-700-43	IC NJM4558M				
IC109⚠	8-749-920-86	IC STA-451C				
IC110⚠	8-749-920-86	IC STA-451C				
IC111	8-759-700-43	IC NJM4558M				
		JUMPER RESISTOR				
JR201	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR202	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR203	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR204	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR205	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR206	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR207	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR208	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR209	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR210	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR211	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR212	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR214	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR215	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR216	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR217	1-216-296-00	METAL GLAZE	0	5%	1/8W	
		COIL				
L101	1-408-409-00	INDUCTOR	10UH			
L102	1-410-328-11	INDUCTOR	10UH			
L103	1-410-509-11	INDUCTOR	10UH			
		TRANSISTOR				
Q101	8-729-901-05	TRANSISTOR DTA124EK				
Q102	8-729-901-00	TRANSISTOR DTC124EK				
Q103	8-729-901-00	TRANSISTOR DTC124EK				

When indicating parts by reference number, please include the board name.

SV-33

Ref.No	Part No.	Description				Remark
Q104	8-729-100-66	TRANSISTOR 2SC1623				
Q105	8-729-100-66	TRANSISTOR 2SC1623				
Q106	8-729-100-66	TRANSISTOR 2SC1623				
Q107	8-729-900-89	TRANSISTOR DTC124ES				
		RESISTOR				
R101	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R102	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R103	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R104	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R105	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R106	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R107	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R108	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R109	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R110	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R111	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R112	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R113	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R114	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R115	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R116	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R117	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R118	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R119	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R120	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R121	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R122	1-216-870-11	METAL GLAZE	180K	1%	1/10W	
R123	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R124	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R125	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R126	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R127	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R128	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R129	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R130	1-216-024-00	METAL GLAZE	91	5%	1/10W	
R145	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R146	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R147	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R148	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R149	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R150	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R151	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R152	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R153	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R155	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R156	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R157	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R158	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R159	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R160	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R161	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R162	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R163	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R164	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R165	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R166	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R167	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R168	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R169	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R170	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R171	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R172	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R173	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R174	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R175	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R176	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R177	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R178	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R179	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R180	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R181	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R182	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R183	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R184	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R185	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R186	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R187	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R188	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R189	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R190	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R191	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R192	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R193	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R194	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R195	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R196	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R197	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R198	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R199	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R200	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R201	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R202	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R203	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R206	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R207	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R208	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R209	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R210	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R211	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R212 ⚠.	1-216-373-11	METAL OXIDE	2.2	5%	2W	F
R213 ⚠.	1-216-373-11	METAL OXIDE	2.2	5%	2W	F
R214	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R215	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R217	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R218	1-216-097-00	METAL GLAZE	100K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R220	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R221	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R222	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R223	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R224	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R225	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R226	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R227	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R228	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R229	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R230	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R231	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R233	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R234	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R235	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R236	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R237	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R238	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R239	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R240	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	

JUMPER RESISTOR

Ref.No	Part No.	Description				Remark
RJ101	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ102	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ103	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ104	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ105	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ106	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ107	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ108	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ109	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ110	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ111	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ218	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ219	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ220	1-216-295-00	METAL GLAZE	0	5%	1/10W	
RJ241	1-216-295-00	METAL GLAZE	0	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description		Remark
RV101	1-228-993-00	RES, ADJ, CARBON	4.7K	
RV102	1-228-994-00	RES, ADJ, CARBON	10K	
RV103	1-228-994-00	RES, ADJ, CARBON	10K	
RV104	1-228-994-00	RES, ADJ, CARBON	10K	
RV105	1-228-994-00	RES, ADJ, CARBON	10K	
RV106	1-228-990-00	RES, ADJ, CARBON	1K	
RV107	1-228-994-00	RES, ADJ, CARBON	10K	
RV108	1-228-990-00	RES, ADJ, CARBON	1K	

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Ref.No	Part No.	Description	Remark
	*A-6421-369-A	MP-15 BOARD, COMPLETE *********************** (Including the AF-52 and TL-40 BOARDS)	*(Ref.No 1,000 Series)
	*3-309-144-21	HEAT SINK	
	3-737-480-01	PLATE, GROUND, JACK	
	7-685-646-79	SCREW +BVTP 3X8 TYPE 2 IT-3	

CAPACITOR

Ref.No	Part No.	Description				Remark
C101	1-124-360-00	ELECT	1000MF	20%	16V	
C102	1-124-472-11	ELECT	470MF	20%	10V	
C103	1-163-115-00	CERAMIC CHIP	82PF	5%	50V	
C104	1-124-438-00	ELECT	1MF	20%	50V	
C105	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C106	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C107	1-124-589-11	ELECT	47MF	20%	16V	
C108	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C109	1-124-446-11	ELECT	47MF	20%	10V	
C110	1-163-103-00	CERAMIC CHIP	27PF	5%	50V	
C111	1-163-095-00	CERAMIC CHIP	12PF	5%	50V	
C112	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C113	1-163-115-00	CERAMIC CHIP	82PF	5%	50V	
C114	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C115	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	
C116	1-163-103-00	CERAMIC CHIP	27PF	5%	50V	
C117	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	
C118	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C119	1-163-103-00	CERAMIC CHIP	27PF	5%	50V	
C120	1-126-157-11	ELECT	10MF	20%	16V	
C121	1-126-157-11	ELECT	10MF	20%	16V	
C122	1-126-157-11	ELECT	10MF	20%	16V	
C123	1-136-165-00	MYLAR	0.1MF	10%	50V	
C124	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C125	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V	
C126	1-124-589-11	ELECT	47MF	20%	16V	
C127	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C128	1-124-446-11	ELECT	47MF	20%	10V	
C129	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C130	1-163-095-00	CERAMIC CHIP	12PF	5%	50V	
C131	1-163-107-00	CERAMIC CHIP	39PF	5%	50V	
C132	1-163-095-00	CERAMIC CHIP	12PF	5%	50V	
C133	1-124-438-00	ELECT	1MF	20%	50V	
C134	1-124-438-00	ELECT	1MF	20%	50V	
C135	1-124-442-00	ELECT	330MF	20%	6.3V	
C136	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C137	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C138	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V	
C139	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C140	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C141	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C142	1-124-438-00	ELECT	1MF	20%	50V	
C143	1-124-438-00	ELECT	1MF	20%	50V	(MDP-515D)
C144	1-163-123-00	CERAMIC CHIP	180PF	5%	50V	(MDP-515D)
C145	1-124-438-00	ELECT	1MF	20%	50V	(MDP-515D)

When indicating parts by reference number, please include the board name.

* Be sure to always read "precautions for replacement of MP-15 complate board" in page 99.
When replaycing the MP-15 complete board.

MP-15

Ref.No	Part No.	Description				Remark
C146	1-163-123-00	CERAMIC CHIP	180PF	5%	50V	
C147	1-124-443-00	ELECT	100MF	20%	10V	
C148	1-163-131-00	CERAMIC CHIP	390PF	5%	50V	
C149	1-163-103-00	CERAMIC CHIP	27PF	5%	50V	(MDP-515D)
C150	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C150	1-163-107-00	CERAMIC CHIP	39PF	5%	50V	(MDP-315)
C151	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C152	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C153	1-124-257-00	ELECT	2.2MF	20%	50V	
C154	1-124-446-11	ELECT	47MF	20%	10V	
C156	1-124-443-00	ELECT	100MF	20%	10V	
C157	1-124-257-00	ELECT	2.2MF	20%	50V	
C158	1-124-471-00	ELECT	1000MF	20%	6.3V	
C159	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C160	1-136-153-00	MYLAR	0.01MF	10%	50V	
C161	1-131-347-00	TANTALUM	1MF	10%	35V	
C162	1-136-157-00	MYLAR	0.022MF	10%	50V	
C163	1-163-107-00	CERAMIC CHIP	39PF	5%	50V	
C164	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C165	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C166	1-124-442-00	ELECT	330MF	20%	6.3V	
C167	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C168	1-124-438-00	ELECT	1MF	20%	50V	
C169	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C170	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C171	1-124-442-00	ELECT	330MF	20%	6.3V	
C174	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C175	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C176	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C177	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C178	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C179	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C180	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C181	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C182	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C183	1-124-446-11	ELECT	47MF	20%	10V	
C184	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C185	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C186	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C187	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V	(MDP-515D)
C188	1-163-095-00	CERAMIC CHIP	12PF	5%	50V	(MDP-515D)
C188	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	(MDP-315)
C189	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C190	1-124-446-11	ELECT	47MF	20%	10V	
C191	1-163-038-00	CERAMIC CHIP	0.1MF		25V	(MDP-515D)
C192	1-163-038-00	CERAMIC CHIP	0.1MF		25V	(MDP-515D)
C193	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C195	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C196	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C197	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C198	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C199	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C200	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C201	1-136-153-00	MYLAR	0.01MF	10%	50V	
C202	1-130-474-00	MYLAR	0.0018MF	5%	50V	
C203	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C204	1-136-153-00	MYLAR	0.01MF	10%	50V	
C205	1-136-159-00	MYLAR	0.033MF	10%	50V	
C206	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C207	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C208	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C209	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	
C210	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C211	1-124-589-11	ELECT	47MF	20%	16V	
C212	1-163-022-00	CERAMIC CHIP	0.012MF	10%	50V	
C213	1-163-139-00	CERAMIC CHIP	820PF	5%	50V	
C214	1-124-446-11	ELECT	47MF	20%	10V	
C215	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C216	1-163-119-00	CERAMIC CHIP	120PF	5%	50V	
C217	1-163-119-00	CERAMIC CHIP	120PF	5%	50V	
C218	1-124-438-00	ELECT	1MF	20%	50V	
C219	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C220	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C222	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C223	1-163-119-00	CERAMIC CHIP	120PF	5%	50V	
C224	1-124-446-11	ELECT	47MF	20%	10V	
C225	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C226	1-124-446-11	ELECT	47MF	20%	10V	
C229	1-136-159-00	MYLAR	0.033MF	10%	50V	
C230	1-136-161-00	MYLAR	0.047MF	10%	50V	
C231	1-131-345-00	TANTALUM	0.47MF	10%	35V	
C232	1-124-438-00	ELECT	1MF	20%	50V	
C233	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C234	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C235	1-130-489-00	MYLAR	0.033MF	5%	50V	
C236	1-130-486-00	MYLAR	0.018MF	5%	50V	
C237	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C238	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C239	1-130-483-00	MYLAR	0.01MF	5%	50V	
C240	1-124-446-11	ELECT	47MF	20%	10V	
C241	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C242	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	
C243	1-136-153-00	MYLAR	0.01MF	10%	50V	
C244	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C245	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C246	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C247	1-124-446-11	ELECT	47MF	20%	10V	
C248	1-124-438-00	ELECT	1MF	20%	50V	
C249	1-136-161-00	MYLAR	0.047MF	10%	50V	
C250	1-124-257-00	ELECT	2.2MF	20%	50V	
C251	1-124-446-11	ELECT	47MF	20%	10V	
C252	1-124-443-00	ELECT	100MF	20%	10V	
C253	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C254	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C255	1-124-446-11	ELECT	47MF	20%	10V	
C256	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	(MDP-515D)

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description		Remark
C257	1-124-443-00	ELECT 100MF	20%	10V
C258	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C261	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C262	1-124-446-11	ELECT 47MF	20%	10V
C270	1-124-446-11	ELECT 47MF	20%	10V
C271	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C272	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C273	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C274	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C275	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C276	1-124-589-11	ELECT 47MF	20%	16V
C277	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C279	1-124-442-00	ELECT 330MF	20%	6.3V
C280	1-124-442-00	ELECT 330MF	20%	6.3V
C281	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C282	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C283	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C284	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C285	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C286	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C287	1-126-157-11	ELECT 10MF	20%	16V
C288	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C289	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C290	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C291	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C292	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C293	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C294	1-164-232-11	CERAMIC CHIP 0.01MF		50V (MDP-515D)
C295	1-164-232-11	CERAMIC CHIP 0.01MF		50V (MDP-515D)
C297	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C298	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C299	1-126-157-11	ELECT 10MF	20%	16V
C300	1-126-157-11	ELECT 10MF	20%	16V
C301	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C302	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C303	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C601	1-163-125-00	CERAMIC CHIP 220PF	5%	50V (MDP-515D)
C602	1-124-257-00	ELECT 2.2MF	20%	50V
C603	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C604	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C605	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C606	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C607	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C608	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C609	1-124-589-11	ELECT 47MF	20%	16V
C610	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C611	1-124-589-11	ELECT 47MF	20%	16V
C612	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C613	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C614	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C615	1-126-094-11	ELECT 4.7MF	20%	25V
C616	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C617	1-163-093-00	CERAMIC CHIP 10PF	5%	50V

Ref.No	Part No.	Description		Remark
C618	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C619	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C620	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C621	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C622	1-126-157-11	ELECT 10MF	20%	16V
C623	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C624	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C625	1-124-589-11	ELECT 47MF	20%	16V
C626	1-126-177-11	ELECT 100MF	20%	6.3V
C627	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C628	1-124-438-00	ELECT 1MF	20%	50V
C629	1-126-177-11	ELECT 100MF	20%	6.3V
C630	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C631	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C632	1-126-177-11	ELECT 100MF	20%	6.3V
C633	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C634	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C635	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C636	1-126-177-11	ELECT 100MF	20%	6.3V
C637	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C638	1-124-499-11	ELECT 1MF	20%	50V
C639	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V
C640	1-126-177-11	ELECT 100MF	20%	6.3V
C641	1-124-465-00	ELECT 0.47MF	20%	50V
C642	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C643	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C644	1-163-015-00	CERAMIC CHIP 0.0033MF	10%	50V
C645	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V
C646	1-126-177-11	ELECT 100MF	20%	6.3V
C647	1-124-438-00	ELECT 1MF	20%	50V
C648	1-163-088-00	CERAMIC CHIP 5PF	0.25PF	50V
C649	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C650	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C651	1-126-177-11	ELECT 100MF	20%	6.3V
C652	1-126-094-11	ELECT 4.7MF	20%	25V
C653	1-163-015-00	CERAMIC CHIP 0.0033MF	10%	50V
C654	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C655	1-126-094-11	ELECT 4.7MF	20%	25V
C656	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C657	1-124-589-11	ELECT 47MF	20%	16V
C658	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C659	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C660	1-126-177-11	ELECT 100MF	20%	6.3V
C661	1-124-598-11	ELECT 22MF	20%	25V
C662	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C663	1-163-015-00	CERAMIC CHIP 0.0033MF	10%	50V
C664	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C665	1-126-157-11	ELECT 10MF	20%	16V
C666	1-126-157-11	ELECT 10MF	20%	16V
C667	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C668	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C669	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C670	1-163-038-00	CERAMIC CHIP 0.1MF		25V

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description			Remark
C671	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C672	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C673	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C674	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C675	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C676	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C677	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C801	1-124-768-11	ELECT	4.7MF	20%	50V
C802	1-124-767-00	ELECT	2.2MF	20%	50V
C803	1-124-446-11	ELECT	47MF	20%	10V
C804	1-124-446-11	ELECT	47MF	20%	10V
C805	1-126-320-11	ELECT	10MF	20%	16V
C806	1-163-077-00	CERAMIC CHIP	0.1MF	10%	25V
C807	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C808	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C809	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C810	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C811	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C812	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C815	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C816	1-124-446-11	ELECT	47MF	20%	10V
C817	1-124-446-11	ELECT	47MF	20%	10V
C818	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C819	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C820	1-123-875-11	ELECT	10MF	20%	50V
C821	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C822	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C823	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C824	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C825	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C826	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C827	1-163-106-00	CERAMIC CHIP	36PF	5%	50V
C828	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C829	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C832	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C840	1-124-443-00	ELECT	100MF	20%	10V
C841	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C842	1-124-443-00	ELECT	100MF	20%	10V
C843	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C844	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C845	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C850	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C851	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C901	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C902	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C904	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C905	1-124-045-00	ELECT	4.7MF	20%	50V
C906	1-126-049-11	ELECT	22MF	20%	10V
C907	1-126-094-11	ELECT	4.7MF	20%	25V
C908	1-126-020-71	ELECT	22MF	20%	25V
C909	1-124-045-00	ELECT	4.7MF	20%	50V
C910	1-124-045-00	ELECT	4.7MF	20%	50V
C911	1-126-049-11	ELECT	22MF	20%	10V
C912	1-126-094-11	ELECT	4.7MF	20%	25V
C913	1-126-020-71	ELECT	22MF	20%	25V
C914	1-124-045-00	ELECT	4.7MF	20%	50V
C915	1-136-250-11	FILM	0.001MF	3%	100V
C916	1-136-232-51	FILM	0.0043MF	3%	100V
C917	1-136-250-11	FILM	0.001MF	3%	100V
C918	1-126-023-11	ELECT	100MF	20%	25V
C919	1-126-060-71	ELECT	22MF	20%	63V
C920	1-136-250-11	FILM	0.001MF	3%	100V
C921	1-126-023-11	ELECT	100MF	20%	25V
C922	1-136-250-11	FILM	0.001MF	3%	100V
C923	1-136-232-51	FILM	0.0043MF	3%	100V
C924	1-136-250-11	FILM	0.001MF	3%	100V
C925	1-126-023-11	ELECT	100MF	20%	25V
C926	1-126-060-71	ELECT	22MF	20%	63V
C927	1-136-250-11	FILM	0.001MF	3%	100V
C928	1-126-023-11	ELECT	100MF	20%	25V
C929	1-126-028-11	ELECT	2200MF	20%	25V
C930	1-126-028-11	ELECT	2200MF	20%	25V
C932	1-124-446-11	ELECT	47MF	20%	10V
C933	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C934	1-126-013-11	ELECT	1000MF	20%	16V
C935	1-126-013-11	ELECT	1000MF	20%	16V
C936	1-126-044-11	ELECT	1MF	20%	50V
C937	1-124-478-11	ELECT	100MF	20%	25V
C938	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C939	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C940	1-126-013-11	ELECT	1000MF	20%	16V
C941	1-126-013-11	ELECT	1000MF	20%	16V
C942	1-124-477-11	ELECT	47MF	20%	25V
C943	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C950	1-126-177-11	ELECT	100MF	20%	6.3V
C951	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C952	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C953	1-126-320-11	ELECT	10MF	20%	16V
C960	1-124-984-71	ELECT	470MF	20%	6.3V

FILTER

CF101	1-567-657-11	FILTER, CERAMIC (SFS-MC TYPE)
CF102	1-527-831-00	FILTER, CERAMIC (MDP-515D)

CONNECTOR

CN101	*1-566-706-11	CONNECTOR, BOARD TO BOARD 12P (MDP-515D)
CN601	*1-564-032-00	PIN, CONNECTOR 7P
CN602	1-563-493-11	CONNECTOR, F.P.C 28P
CN603	*1-506-483-21	PIN, CONNECTOR 4P
CN604	1-506-486-11	PIN, CONNECTOR 7P
CN605	*1-506-488-11	PIN, CONNECTOR 9P
CN606	1-506-481-11	PIN, CONNECTOR 2P
CN607	1-506-482-11	PIN, CONNECTOR 3P
CN608	*1-506-481-11	PIN, CONNECTOR 2P
CN801	*1-566-706-11	CONNECTOR, BOARD TO BOARD 12P

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
CN802	*1-564-028-00	PIN, CONNECTOR 3P	
CN803	1-506-471-11	PIN, CONNECTOR 6P	

JACK

CNJ101	1-561-534-82	SOCKET 21P	
CNJ102	1-565-351-51	JACK, PIN 3P	
CNJ103	8-759-977-71	GP1F31T	
CNJ104	1-537-005-21	JACK BOARD	
CNJ601	1-507-678-00	JACK	
CNJ602	1-507-678-00	JACK	

TRIMMER

CV601	1-141-227-00	CAP, CERAMIC TRIMMER	
CV602	1-141-227-00	CAP, CERAMIC TRIMMER	

DIODE

D101	8-719-110-33	DIODE RD12ES-B3	
D102	8-719-911-19	DIODE 1SS119	
D103	8-719-911-19	DIODE 1SS119	
D104	8-719-911-19	DIODE 1SS119	
D105	8-719-911-19	DIODE 1SS119	
D601	8-719-911-19	DIODE 1SS119 (MDP-515D)	
D602	8-719-911-19	DIODE 1SS119 (MDP-515D)	
D603	8-719-911-19	DIODE 1SS119	
D604	8-719-907-19	DIODE FC52M-5	
D605	8-719-911-19	DIODE 1SS119	
D606	8-719-110-22	DIODE RD11ES-B2	
D607	8-719-110-22	DIODE RD11ES-B2	
D608	8-719-911-19	DIODE 1SS119	
D609	8-719-911-19	DIODE 1SS119	
D610	8-719-911-19	DIODE 1SS119	
D611	8-719-110-03	DIODE RD7.5ES-B2	
D612	8-719-911-19	DIODE 1SS119	
D613	8-719-911-19	DIODE 1SS119	
D801	8-719-923-64	DIODE KV1236D	
D802	8-719-907-19	DIODE FC52M-5	
D803	8-719-907-19	DIODE FC52M-5	
D804	8-719-911-19	DIODE 1SS119	
D805	8-719-911-19	DIODE 1SS119	
D806	8-719-100-05	DIODE MA152WK	
D807	8-719-100-05	DIODE MA152WK	
D808	8-719-100-05	DIODE MA152WK	
D811	8-719-911-19	DIODE 1SS119	
D812	8-719-911-19	DIODE 1SS119	
D813	8-719-911-19	DIODE 1SS119	
D815	8-719-911-19	DIODE 1SS119	
D820	8-719-200-91	DIODE 11EQS10	
D821	8-719-200-91	DIODE 11EQS10	
D822	8-719-200-91	DIODE 11EQS10	
D823	8-719-200-91	DIODE 11EQS10	
D903	8-719-911-19	DIODE 1SS119	
D910	8-719-911-19	DIODE 1SS119	

Ref.No	Part No.	Description	Remark
D911	8-719-911-19	DIODE 1SS119	

FILTER

FL101	1-236-580-11	FILTER, LOW PASS	
FL102	1-235-943-11	BPF (MDP-515D)	
FL103	1-236-262-11	FILTER, BAND PASS	
FL104	1-236-580-11	FILTER, LOW PASS	
FL105	1-409-431-11	COIL, TRAP (MDP-515D)	
FL106	1-409-447-11	COIL, TRAP	
FL601	1-421-927-21	FILTER, NOISE	
FL602	1-235-922-11	FILTER, LOW PASS (1.7MHZ)	
FL603	1-421-927-21	FILTER, NOISE	
FL801	1-424-031-11	FILTER, NOISE	
FL802	1-424-031-11	FILTER, NOISE	
FL803	1-424-031-11	FILTER, NOISE	
FL804	1-424-031-11	FILTER, NOISE	
FL805	1-424-031-11	FILTER, NOISE	
FL806	1-424-031-11	FILTER, NOISE	
FL807	1-424-031-11	FILTER, NOISE	
FL808	1-424-031-11	FILTER, NOISE	
FL809	1-424-031-11	FILTER, NOISE	
FL810	1-424-031-11	FILTER, NOISE	
FL811	1-424-031-11	FILTER, NOISE	
FL812	1-424-031-11	FILTER, NOISE	

IC

IC101	8-759-982-10	IC RC7809FA	
IC102	8-759-941-68	IC BA7131F	
IC103	8-759-941-68	IC BA7131F (MDP-515D)	
IC104	8-752-006-12	IC CX20061	
IC105	8-752-322-34	IC CXL5003M	
IC106	8-752-036-23	IC CXA1254Q	
IC107	8-759-941-68	IC BA7131F (MDP-515D)	
IC108	8-759-907-81	IC SN74LS221NS	
IC109	8-759-983-48	IC CXD1152	
IC110	8-759-100-95	IC UPC324G2	
IC111	8-752-036-24	IC CXA1255Q	
IC113	8-759-204-97	IC TC74HCU04F	
IC601	8-759-305-28	IC HD74HC4040FP (MDP-515D)	
IC602	8-759-941-68	IC BA7131F (MDP-515D)	
IC603	8-759-630-74	M50455-080FP	
IC604	8-759-208-11	IC TC4053BFHB	
IC605	8-759-902-88	IC SN74LS123NS	
IC606	8-759-200-84	IC TC4081BF	
IC607	8-759-700-07	IC LM2903M	
IC608	8-759-207-28	IC TC9015P	
IC609	8-759-208-11	IC TC4053BFHB	
IC610	8-759-603-24	IC CX20197	
IC611	8-759-208-11	IC TC4053BFHB	
IC612	8-752-033-14	IC CXA1081Q	
IC613	8-759-988-40	IC MB89795-119	
IC614	8-759-987-71	IC MSM72H032	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark
IC615	8-759-100-96	IC UPC4558G2	
IC616	8-759-208-15	IC TC4066BFHB	
IC617	8-759-100-96	IC UPC4558G2	
IC618	8-759-231-92	IC TA7291P	
IC619	8-759-201-53	IC TC40H000F	
IC620	8-759-932-64	IC BU4052BF	
IC621	8-759-208-11	IC TC4053BFHB	
IC801	8-752-325-59	IC CXD1165Q	
IC802	8-759-908-17	IC TL082CPS	
IC803	8-759-908-17	IC TL082CPS	
IC805	8-759-927-29	IC SN74HCU04NS	
IC809	8-759-208-15	IC TC4066BFHB	
IC811	8-752-328-61	IC CXD1244S	
IC812	8-759-926-17	IC SN74HC153NS	
IC813	8-759-205-06	IC TC74HC74F	
IC814	8-759-982-44	IC NJM79L05A	
IC816	8-759-604-29	IC M5F7805	
IC817	8-759-979-09	IC PCM58P	
IC818	8-759-979-09	IC PCM58P	
IC819	8-759-701-21	IC NJM5532D-D	
IC820	8-759-701-21	IC NJM5532D-D	
IC821	8-759-604-33	IC M5F7812	
IC822	8-759-604-51	IC M5F7912	
IC823	8-759-700-43	IC NJM4558M	
IC824	8-759-204-97	IC TC74HCU04F	

JUMPER RESISTOR

JR101	1-216-295-00	METAL GLAZE 0 5% 1/10W	(MDP-315)
JR102	1-216-295-00	METAL GLAZE 0 5% 1/10W	(MDP-315)
JR103	1-216-295-00	METAL GLAZE 0 5% 1/10W	(MDP-315)
JR601	1-216-295-00	METAL GLAZE 0 5% 1/10W	(MDP-315)
JR602	1-216-295-00	METAL GLAZE 0 5% 1/10W	(MDP-315)
JR604	1-216-295-00	METAL GLAZE 0 5% 1/10W	(MDP-315)

COIL

L101	1-408-421-00	INDUCTOR 100UH	
L102	1-408-421-00	INDUCTOR 100UH	
L103	1-408-417-00	INDUCTOR 47UH	
L104	1-408-417-00	INDUCTOR 47UH	
L105	1-408-419-00	INDUCTOR 68UH	
L106	1-408-417-00	INDUCTOR 47UH	
L107	1-408-411-00	INDUCTOR 15UH	
L108	1-408-419-00	INDUCTOR 68UH	
L109	1-408-609-41	INDUCTOR 33UH	
L110	1-408-421-00	INDUCTOR 100UH	
L111	1-408-425-00	INDUCTOR 220UH	
L112	1-408-417-00	INDUCTOR 47UH	
L113	1-408-421-00	INDUCTOR 100UH	
L114	1-408-421-00	INDUCTOR 100UH	
L115	1-408-609-41	INDUCTOR 33UH	
L116	1-408-421-00	INDUCTOR 100UH	
L117	1-408-421-00	INDUCTOR 100UH	
L118	1-408-421-00	INDUCTOR 100UH	
L119	1-408-424-00	INDUCTOR 180UH	
L120	1-408-421-00	INDUCTOR 100UH	
L123	1-408-421-00	INDUCTOR 100UH	
L124	1-408-417-00	INDUCTOR 47UH	
L601	1-408-411-00	INDUCTOR 15UH	
L602	1-408-421-00	INDUCTOR 100UH	
L603	1-408-409-00	INDUCTOR 10UH	
L604	1-408-420-00	INDUCTOR 82UH	
L605	1-408-420-00	INDUCTOR 82UH	
L606	1-408-409-00	INDUCTOR 10UH	
L607	1-424-033-21	FILTER, NOISE	
L608	1-408-409-00	INDUCTOR 10UH	
L609	1-408-409-00	INDUCTOR 10UH	
L803	1-424-033-21	FILTER, NOISE	
L805	1-424-033-21	FILTER, NOISE	

VARIABLE COIL

LV801	1-426-212-11	COIL (RF)	

TRANSISTOR

Q101	8-729-100-66	TRANSISTOR 2SC1623	
Q102	8-729-100-66	TRANSISTOR 2SC1623	
Q103	8-729-100-66	TRANSISTOR 2SC1623	
Q104	8-729-100-66	TRANSISTOR 2SC1623	
Q105	8-729-100-66	TRANSISTOR 2SC1623	
Q106	8-729-100-66	TRANSISTOR 2SC1623	
Q107	8-729-100-66	TRANSISTOR 2SC1623	
Q108	8-729-100-66	TRANSISTOR 2SC1623	
Q109	8-729-216-22	TRANSISTOR 2SA1162	
Q110	8-729-100-66	TRANSISTOR 2SC1623	
Q111	8-729-100-66	TRANSISTOR 2SC1623	
Q112	8-729-100-66	TRANSISTOR 2SC1623	
Q114	8-729-100-66	TRANSISTOR 2SC1623	
Q115	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q116	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q117	8-729-100-66	TRANSISTOR 2SC1623	
Q118	8-729-100-66	TRANSISTOR 2SC1623	
Q119	8-729-100-66	TRANSISTOR 2SC1623	
Q120	8-729-901-01	TRANSISTOR DTC144EK	(MDP-515D)
Q121	8-729-100-66	TRANSISTOR 2SC1623	
Q122	8-729-100-66	TRANSISTOR 2SC1623	
Q123	8-729-901-01	TRANSISTOR DTC144EK	(MDP-515D)
Q124	8-729-901-01	TRANSISTOR DTC144EK	(MDP-515D)
Q125	8-729-901-01	TRANSISTOR DTC144EK	(MDP-515D)
Q126	8-729-216-22	TRANSISTOR 2SA1162	
Q128	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q129	8-729-100-66	TRANSISTOR 2SC1623	
Q130	8-729-216-22	TRANSISTOR 2SA1162	
Q131	8-729-100-66	TRANSISTOR 2SC1623	
Q132	8-729-100-66	TRANSISTOR 2SC1623	
Q133	8-729-901-00	TRANSISTOR DTC124EK	
Q134	8-729-901-05	TRANSISTOR DTA124EK	
Q135	8-729-901-01	TRANSISTOR DTC144EK	(MDP-515D)

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q136	8-729-901-01	TRANSISTOR DTC144EK (MDP-515D)	
Q137	8-729-100-66	TRANSISTOR 2SC1623	
Q138	8-729-140-75	TRANSISTOR 2SD999CLCK	
Q139	8-729-100-66	TRANSISTOR 2SC1623	
Q140	8-729-100-66	TRANSISTOR 2SC1623	
Q141	8-729-100-66	TRANSISTOR 2SC1623	
Q142	8-729-100-66	TRANSISTOR 2SC1623	
Q143	8-729-100-66	TRANSISTOR 2SC1623	
Q144	8-729-100-66	TRANSISTOR 2SC1623	
Q145	8-729-901-00	TRANSISTOR DTC124EK	
Q146	8-729-100-66	TRANSISTOR 2SC1623	
Q147	8-729-374-02	TRANSISTOR 2SB740	
Q148	8-729-216-22	TRANSISTOR 2SA1162	
Q150	8-729-100-66	TRANSISTOR 2SC1623	
Q151	8-729-901-01	TRANSISTOR DTC144EK (MDP-515D)	
Q152	8-729-100-66	TRANSISTOR 2SC1623	
Q153	8-729-901-01	TRANSISTOR DTC144EK	
Q154	8-729-100-66	TRANSISTOR 2SC1623	
Q155	8-729-100-66	TRANSISTOR 2SC1623	
Q156	8-729-903-10	TRANSISTOR FMW1	
Q157	8-729-903-10	TRANSISTOR FMW1	
Q158	8-729-100-66	TRANSISTOR 2SC1623	
Q159	8-729-100-66	TRANSISTOR 2SC1623	
Q160	8-729-100-66	TRANSISTOR 2SC1623	
Q161	8-729-100-66	TRANSISTOR 2SC1623	
Q162	8-729-100-66	TRANSISTOR 2SC1623	
Q163	8-729-216-22	TRANSISTOR 2SA1162	
Q164	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)	
Q165	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)	
Q166	8-729-901-01	TRANSISTOR DTC144EK	
Q167	8-729-901-01	TRANSISTOR DTC144EK (MDP-515D)	
Q168	8-729-100-66	TRANSISTOR 2SC1623	
Q169	8-729-100-66	TRANSISTOR 2SC1623	
Q601	8-729-100-66	TRANSISTOR 2SC1623	
Q602	8-729-901-01	TRANSISTOR DTC144EK	
Q603	8-729-100-66	TRANSISTOR 2SC1623	
Q604	8-729-901-01	TRANSISTOR DTC144EK	
Q605	8-729-901-01	TRANSISTOR DTC144EK	
Q606	8-729-100-66	TRANSISTOR 2SC1623	
Q607	8-729-100-66	TRANSISTOR 2SC1623	
Q608	8-729-901-01	TRANSISTOR DTC144EK	
Q609	8-729-901-06	TRANSISTOR DTA144EK	
Q610	8-729-216-22	TRANSISTOR 2SA1162	
Q611	8-729-140-97	TRANSISTOR 2SB734-34	
Q612	8-729-901-00	TRANSISTOR DTC124EK	
Q613	8-729-100-66	TRANSISTOR 2SC1623	
Q614	8-729-100-66	TRANSISTOR 2SC1623	
Q615	8-729-901-00	TRANSISTOR DTC124EK	
Q618	8-729-216-22	TRANSISTOR 2SA1162	
Q801	8-729-900-53	TRANSISTOR DTC114EK	
Q802	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q803	8-729-900-53	TRANSISTOR DTC114EK	
Q804	8-729-900-53	TRANSISTOR DTC114EK	

Ref.No	Part No.	Description	Remark
Q806	8-729-901-05	TRANSISTOR DTA124EK	
Q807	8-729-900-53	TRANSISTOR DTC114EK	
Q808	8-729-900-53	TRANSISTOR DTC114EK	
Q809	8-729-901-06	TRANSISTOR DTA144EK	
Q810	8-729-901-06	TRANSISTOR DTA144EK	
Q811	8-729-216-22	TRANSISTOR 2SA1162	
Q812	8-729-303-37	TRANSISTOR 2SD655-E	
Q813	8-729-303-37	TRANSISTOR 2SD655-E	
Q814	8-729-901-05	TRANSISTOR DTA124EK	
Q815	8-729-901-05	TRANSISTOR DTA124EK	
		RESISTOR	
R101 ⚠.	1-212-950-00	FUSIBLE 4.7 5% 1/2W	F
R102	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R103	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R104	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R105	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R106	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R107	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R108	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R109	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R110	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R111	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R112	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R113	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R114	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R115	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R116	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R117	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R118	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R119	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R120	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R121	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R122	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R123	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R124	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R125	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R126	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R127	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R128	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R129	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R131	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R132	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R133	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R134	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R135	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R136	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R140	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R141	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R142	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R143	1-216-045-00	METAL GLAZE 680 5% 1/10W (MDP-515D)	
R144	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W (MDP-515D)	
R145	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W (MDP-515D)	

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Ref.No	Part No.	Description				Remark
R146	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R147	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R148	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R149	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R150	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R151	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R152	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R153	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R154	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R155	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R157	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R158	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R159	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R160	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R161	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R162	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R163	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R164	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R165	1-249-410-11	CARBON	270	5%	1/4W	
R166	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R167	1-216-047-00	METAL GLAZE	820	5%	1/10W	(MDP-515D)
R168	1-249-410-11	CARBON	270	5%	1/4W	
R169	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R170	1-216-113-00	METAL GLAZE	470K	5%	1/10W	(MDP-515D)
R171	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R172	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R175	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R176	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R177	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R178	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R179	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R180	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	(MDP-515D)
R181	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	(MDP-515D)
R182	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R183	1-216-049-00	METAL GLAZE	1K	5%	1/10W	(MDP-515D)
R184	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R185	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R186	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R190	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R191	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R192	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R193	1-216-091-00	METAL GLAZE	56K	5%	1/10W	(MDP-515D)
R193	1-216-748-11	METAL GLAZE	39K	5%	1/10W	(MDP-315)
R195	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R197	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R198	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R199	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R200	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R201	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R202	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R203	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R204	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R205	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R206	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R207	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R208	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R209	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R210	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R211	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R212	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R213	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R214	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R215	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R216	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R217	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R218	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R219	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R220	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R221	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R222	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R223	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R224	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R226	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R227	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R228	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R229	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R230	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R231	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R232	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R233	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R234	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R235	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R236	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R237	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R238	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R239	1-216-115-00	METAL GLAZE	560K	5%	1/10W	(MDP-515D)
R240	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R241	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R242	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R243	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R244	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R245	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R246	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R247	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R248	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R249	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R250	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R252	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R253	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R254	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R255	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R256	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R257	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R258	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R259	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R260	1-216-089-00	METAL GLAZE	47K	5%	1/10W	(MDP-515D)

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R260	1-216-295-00	METAL GLAZE	0	5%	1/10W	(MDP-315)
R261	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	(MDP-515D)
R261	1-216-295-00	METAL GLAZE	0	5%	1/10W	(MDP-315)
R262	1-216-109-00	METAL GLAZE	330K	5%	1/10W	(MDP-515D)
R263	1-216-075-00	METAL GLAZE	12K	5%	1/10W	(MDP-515D)
R264	1-216-748-11	METAL GLAZE	39K	5%	1/10W	(MDP-515D)
R265	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R266	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R267	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R268	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R269	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R270	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R271	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R272	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R273	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R274	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R275	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R276	1-216-099-00	METAL GLAZE	120K	5%	1/10W	(MDP-515D)
R277	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R278	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R279	1-249-416-11	CARBON	820	5%	1/4W	
R281	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R282	1-249-389-11	CARBON	4.7	5%	1/4W	
R283	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R284	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R285	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R286	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R290	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R291	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R292	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R293	1-216-049-00	METAL GLAZE	1K	5%	1/10W	(MDP-515D)
R293	1-216-295-00	METAL GLAZE	0	5%	1/10W	(MDP-315)
R294	1-216-035-00	METAL GLAZE	270	5%	1/10W	(MDP-515D)
R294	1-216-295-00	METAL GLAZE	0	5%	1/10W	(MDP-315)
R295	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R296	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R297	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R298	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R299	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R300	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R301	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R302	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R303	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R304	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R305	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R306	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R307	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R308	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R309	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R310	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R311	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R312	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R313	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R314	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R316	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R317	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R318	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R319	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R320	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R321	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R322	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R323	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R324	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R325	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R326	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R327	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R328	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R329	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R330	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R331	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R332	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R333	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R334	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R335	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R336	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R337	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R338	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R339	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R340	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R341	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R342	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R343	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R344	1-216-097-00	METAL GLAZE	100K	5%	1/10W	(MDP-515D)
R345	1-216-095-00	METAL GLAZE	82K	5%	1/10W	(MDP-515D)
R346	1-216-097-00	METAL GLAZE	100K	5%	1/10W	(MDP-515D)
R347	1-216-095-00	METAL GLAZE	82K	5%	1/10W	(MDP-515D)
R348	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	(MDP-515D)
R349	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	(MDP-515D)
R350	1-216-047-00	METAL GLAZE	820	5%	1/10W	(MDP-515D)
R351	1-216-037-00	METAL GLAZE	330	5%	1/10W	(MDP-515D)
R352	1-249-405-11	CARBON	100	5%	1/4W	(MDP-515D)
R353	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R354	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R355	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R356	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R357	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R358	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R359	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R360	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R361	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R362	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R601	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R602	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R603	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R604	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R605	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark
R606	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R607	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R608	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R609	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R610	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R611	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R612	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R613	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R614	1-216-097-00	METAL GLAZE 100K 5% 1/10W	(MDP-515D)
R615	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R616	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R617	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R618	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R619	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R620	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R621	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R622	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R623	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R624	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R625	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R626	1-216-095-00	METAL GLAZE 82K 5% 1/10W	
R627	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R628	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R629	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R630	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R631	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R632	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R633	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R634	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R635	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R636	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R637	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R638	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R639	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R640	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R641	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R642	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R642	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R643	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R643	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R644	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R645	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R646	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R647	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R648	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R649	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R650	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R651	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R652	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R653	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R654	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R655	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R656	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R657	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R658	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R659	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R660	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R661	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R662	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R663	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R664	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R665	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R666	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R667	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R668	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R669	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R670	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	
R671	1-216-659-11	METAL CHIP 2.2K 0.50% 1/10W	
R672	1-216-667-11	METAL CHIP 4.7K 0.50% 1/10W	
R673	1-216-659-11	METAL CHIP 2.2K 0.50% 1/10W	
R674	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	
R675	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	
R676	1-216-625-11	METAL CHIP 82 0.50% 1/10W	
R677	1-216-645-11	METAL CHIP 560 0.50% 1/10W	
R678	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R679	1-216-675-11	METAL CHIP 10K 0.50% 1/10W	
R680	1-216-697-11	METAL CHIP 82K 0.50% 1/10W	
R681	1-247-731-11	CARBON 22 5% 1/2W	
R682	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R683	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R684	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R685	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R686	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R687	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R688	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R689	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R690	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R691	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R692	1-216-013-00	METAL GLAZE 33 5% 1/10W	
R693	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R694	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R695	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R696	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R697	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R698	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R699	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R700	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R701	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R702	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R703	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R704	1-216-111-00	METAL GLAZE 390K 5% 1/10W	
R705	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R706	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R707	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R708	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R709	1-216-111-00	METAL GLAZE 390K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R710	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R711	1-216-111-00	METAL GLAZE	390K	5%	1/10W	
R712	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R713	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R714	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R715	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R716	1-216-111-00	METAL GLAZE	390K	5%	1/10W	
R717	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R718	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R719	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R720	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R721	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R722	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R723	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R724	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R725	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R726	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R727	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R728	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R729	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R731	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R732	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R733	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R734	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R735	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R736	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R737	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R738	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R739	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R740	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R741 ⚠.	1-212-950-00	FUSIBLE	4.7	5%	1/2W	F
R742	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R743	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R744	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R745	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R746	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R747	1-216-675-11	METAL CHIP	10K	0.50%	1/10W	
R748	1-216-683-11	METAL CHIP	22K	0.50%	1/10W	
R749	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R750	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R751	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R752	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R753	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R754	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R755	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R756	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R757	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R760	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R761	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R801	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R802	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R803	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R804	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R805	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R806	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R807	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R808	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R809	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R810	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R811	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R812	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R813	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R814	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R815	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R816	1-216-062-00	METAL GLAZE	3.6K	5%	1/10W	
R817	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R818	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R819	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R820	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R821	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R822	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R823	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R825	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R826	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R827	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R828	1-216-334-11	METAL GLAZE	22K	1%	1/10W	
R829	1-216-334-11	METAL GLAZE	22K	1%	1/10W	
R830	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R831	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R832	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R833	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R834	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R835	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R836	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R840	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R841	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R842	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R844	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R845	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R846	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R847	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R848	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R849	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R850	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R851	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R861	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R862	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R863	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R864	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R865	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R868	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R901	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R903	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R909	1-259-178-81	CARBON	3K	1%	1/4W	
R910	1-259-171-91	CARBON	1.5K	5%	1/4W	
R911	1-259-171-91	CARBON	1.5K	5%	1/4W	

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description				Remark
R912	1-259-223-91	CARBON	220K	5%	1/4W	
R913	1-259-178-81	CARBON	3K	1%	1/4W	
R914	1-259-171-91	CARBON	1.5K	5%	1/4W	
R915	1-259-171-91	CARBON	1.5K	5%	1/4W	
R916	1-259-223-91	CARBON	220K	5%	1/4W	
R917	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R920 ⚠	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R921 ⚠	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R922	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R924	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R925	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R926	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R927	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R928	1-259-151-91	CARBON	220	5%	1/4W	
R929	1-259-151-91	CARBON	220	5%	1/4W	
R930	1-259-215-91	CARBON	100K	5%	1/4W	
R931	1-259-215-91	CARBON	100K	5%	1/4W	
R932	1-259-167-91	CARBON	1K	5%	1/4W	
R933	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R934	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R935	1-259-167-91	CARBON	1K	5%	1/4W	
R936	1-216-060-00	METAL GLAZE	3K	5%	1/10W	
R937	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R938	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R939	1-259-191-91	CARBON	10K	5%	1/4W	
R940	1-259-191-91	CARBON	10K	5%	1/4W	
R941	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R942	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R945	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R946	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R947	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R951	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R952	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R953	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R954	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

VARIABLE RESISTOR

RV101	1-228-989-00	RES, ADJ, CARBON 470
RV102	1-228-989-00	RES, ADJ, CARBON 470
RV103	1-228-993-00	RES, ADJ, CARBON 4.7K
RV104	1-228-994-00	RES, ADJ, CARBON 10K
RV105	1-228-993-00	RES, ADJ, CARBON 4.7K
RV106	1-228-998-00	RES, ADJ, METAL GLAZE 220K
RV107	1-228-994-00	RES, ADJ, CARBON 10K
RV801	1-228-993-00	RES, ADJ, CARBON 4.7K

RELAY

RY801	1-515-622-11	RELAY

CRYSTAL

Ref.No	Part No.	Description	Remark
X101	1-567-652-11	VIBRATOR, CRYSTAL	
X601	1-567-733-11	VIBRATOR, CRYSTAL	
X602	1-567-900-11	VIBRATOR, CRYSTAL	
X801	1-567-515-11	VIBRATOR, VARIABLE CRYSTAL	

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*A-6421-371-A AF-52 BOARD, COMPLETE (Ref.No 8,000 Series)
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CAPACITOR

C401	1-126-177-11	ELECT	100MF	20%	6.3V	(MDP-515D)
C402	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	(MDP-515D)
C403	1-163-126-00	CERAMIC CHIP	240PF	5%	50V	(MDP-515D)
C404	1-163-126-00	CERAMIC CHIP	240PF	5%	50V	(MDP-515D)
C405	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	(MDP-515D)
C406	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	(MDP-515D)
C407	1-163-111-00	CERAMIC CHIP	56PF	5%	50V	(MDP-515D)
C408	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	(MDP-515D)
C409	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	(MDP-515D)
C410	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	(MDP-515D)
C411	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	(MDP-515D)
C412	1-124-446-11	ELECT	47MF	20%	10V	(MDP-515D)
C413	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	(MDP-515D)
C414	1-124-446-11	ELECT	47MF	20%	10V	(MDP-515D)
C415	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	(MDP-515D)
C416	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	(MDP-515D)
C417	1-126-177-11	ELECT	100MF	20%	6.3V	(MDP-515D)
C418	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	(MDP-515D)
C419	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	(MDP-515D)
C420	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	(MDP-515D)
C421	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	(MDP-515D)
C422	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	(MDP-515D)
C423	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	(MDP-515D)
C424	1-124-446-11	ELECT	47MF	20%	10V	(MDP-515D)
C425	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	(MDP-515D)
C426	1-124-446-11	ELECT	47MF	20%	10V	(MDP-515D)
C427	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	(MDP-515D)
C428	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	(MDP-515D)
C429	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V	(MDP-515D)
C715	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	
C716	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C717	1-124-443-00	ELECT	100MF	20%	6.3V	
C718	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V	
C719	1-124-443-00	ELECT	100MF	20%	6.3V	
C720	1-126-233-11	ELECT	22MF	20%	25V	
C721	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	(MDP-515D)
C721	1-216-295-00	METAL GLAZE	0	5%	1/10W	(MDP-315)
C722	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V	
C723	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C724	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V	
C725	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V	
C726	1-126-233-11	ELECT	22MF	20%	25V	
C727	1-124-443-00	ELECT	100MF	20%	6.3V	
C728	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C729	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V	

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description			Remark
C730	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C731	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C732	1-163-020-00	CERAMIC CHIP	0.0082MF	5%	50V
C733	1-123-875-11	ELECT	10MF	20%	50V
C734	1-163-809-11	CERAMIC CHIP	0.047MF	5%	25V
C735	1-163-077-00	CERAMIC CHIP	0.1MF	10%	25V
C736	1-126-233-11	ELECT	22MF	20%	25V
C737	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C738	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C739	1-124-443-00	ELECT	100MF	20%	6.3V
C740	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C741	1-126-233-11	ELECT	22MF	20%	25V
C742	1-124-443-00	ELECT	100MF	20%	6.3V
C743	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C744	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C745	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C746	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C747	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C748	1-126-233-11	ELECT	22MF	20%	25V
C749	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C750	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C751	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C752	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C753	1-163-020-00	CERAMIC CHIP	0.0082MF	5%	50V
C754	1-123-875-11	ELECT	10MF	20%	50V
C755	1-163-809-11	CERAMIC CHIP	0.047MF	5%	25V
C756	1-124-270-11	ELECT	0.47MF	20%	50V
C757	1-124-443-00	ELECT	100MF	20%	6.3V
C758	1-124-927-11	ELECT	4.7MF	20%	50V
C759	1-216-295-00	METAL GLAZE	0	5%	1/10W (MDP-315)
C759	1-163-105-00	CERAMIC CHIP	33PF	5%	50V (MDP-515D)
C760	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C761	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C762	1-124-446-11	ELECT	47MF	20%	10V
C763	1-124-446-11	ELECT	47MF	20%	10V
C764	1-163-116-00	CERAMIC CHIP	91PF	5%	50V
C765	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C766	1-124-446-11	ELECT	47MF	20%	10V (MDP-515D)

CONNECTOR

Ref.No	Part No.	Description
CN701	*1-566-709-11	CONNECTOR, BOARD TO BOARD 12P

FILTER

Ref.No	Part No.	Description
FL401	1-235-925-11	FILTER, BAND PASS (2.3MHZ) (MDP-515D)
FL402	1-235-926-11	FILTER, BAND PASS (2.8MHZ) (MDP-515D)
FL403	1-236-573-11	BPF (PAL LCH) (0.68MHz)
FL404	1-236-574-11	BPF (PAL LCH) (1.07MHz)

IC

Ref.No	Part No.	Description
IC401	8-759-941-68	IC BA7131F (MDP-515D)
IC402	8-759-941-68	IC BA7131F (MDP-515D)
IC701	8-759-321-46	IC HA12127NT

JUMPER RESISTOR

Ref.No	Part No.	Description			Remark
JR1	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR2	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR3	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR4	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR5	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR6	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR7	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR8	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR9	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR10	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR11	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR12	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR13	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR14	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR15	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR16	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR17	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR18	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR19	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR20	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR21	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR23	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR24	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR25	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR26	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR27	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR28	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR29	1-216-295-00	METAL GLAZE	0	5%	1/10W

COIL

Ref.No	Part No.	Description	
L401	1-410-521-11	INDUCTOR	100UH (MDP-515D)
L402	1-410-336-11	INDUCTOR	220UH (MDP-515D)
L403	1-408-417-00	INDUCTOR	47UH (MDP-515D)
L404	1-408-417-00	INDUCTOR	47UH (MDP-515D)
L405	1-410-520-11	INDUCTOR	82UH
L406	1-410-520-11	INDUCTOR	82UH
L705	1-408-420-00	INDUCTOR	82UH
L706	1-408-420-00	INDUCTOR	82UH
L707	1-408-407-00	INDUCTOR	6.8UH
L708	1-408-407-00	INDUCTOR	6.8UH

TRANSISTOR

Ref.No	Part No.	Description
Q401	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)
Q402	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)
Q403	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)
Q404	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)
Q405	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)
Q406	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)
Q407	8-729-100-66	TRANSISTOR 2SC1623
Q408	8-729-100-66	TRANSISTOR 2SC1623
Q409	8-729-100-66	TRANSISTOR 2SC1623
Q410	8-729-100-66	TRANSISTOR 2SC1623

When indicating parts by reference number, please include the board name.

AF-52

Ref.No	Part No.	Description	Remark
Q411	8-729-100-66	TRANSISTOR 2SC1623	
Q412	8-729-100-66	TRANSISTOR 2SC1623	
Q701	8-729-808-36	TRANSISTOR 2SK669	(MDP-515D)
Q702	8-729-808-36	TRANSISTOR 2SK669	(MDP-515D)
Q703	8-729-901-01	TRANSISTOR DTC144EK	
Q704	8-729-901-06	TRANSISTOR DTA144EK	
Q705	8-729-220-93	TRANSISTOR 2SK209G	(MDP-515D)
Q706	8-729-220-93	TRANSISTOR 2SK209G	(MDP-515D)
		RESISTOR	
R401	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(MDP-515D)
R402	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	(MDP-515D)
R403	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	(MDP-515D)
R404	1-216-033-00	METAL GLAZE 220 5% 1/10W	(MDP-515D)
R405	1-216-048-00	METAL GLAZE 910 5% 1/10W	(MDP-515D)
R406	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(MDP-515D)
R407	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(MDP-515D)
R408	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R409	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R410	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R411	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R412	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	(MDP-515D)
R413	1-216-075-00	METAL GLAZE 12K 5% 1/10W	(MDP-515D)
R414	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(MDP-515D)
R415	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R416	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R417	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R418	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	(MDP-515D)
R419	1-216-075-00	METAL GLAZE 12K 5% 1/10W	(MDP-515D)
R420	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(MDP-515D)
R421	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(MDP-515D)
R422	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	(MDP-515D)
R423	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	(MDP-515D)
R424	1-216-033-00	METAL GLAZE 220 5% 1/10W	(MDP-515D)
R425	1-216-045-00	METAL GLAZE 680 5% 1/10W	(MDP-515D)
R426	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(MDP-515D)
R427	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(MDP-515D)
R428	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R429	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R430	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R431	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R432	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	(MDP-515D)
R433	1-216-075-00	METAL GLAZE 12K 5% 1/10W	(MDP-515D)
R434	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(MDP-515D)
R435	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R436	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R437	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(MDP-515D)
R438	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	(MDP-515D)
R439	1-216-075-00	METAL GLAZE 12K 5% 1/10W	(MDP-515D)
R440	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(MDP-515D)
R719	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R720	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R721	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	

Ref.No	Part No.	Description	Remark
R722	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R723	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R724	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R725	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R726	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R727	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R728	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R729	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R730	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R731	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(MDP-515D)
R731	1-216-085-00	METAL GLAZE 33K 5% 1/10W	(MDP-315)
R732	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(MDP-315)
R732	1-216-748-11	METAL GLAZE 39K 5% 1/10W	(MDP-515D)
R733	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R734	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R735	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R736	1-216-096-00	METAL GLAZE 91K 5% 1/10W	
R737	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R738	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R739	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R740	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R741	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R742	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R743	1-216-692-11	METAL CHIP 51K 0.50% 1/10W	
R744	1-216-692-11	METAL CHIP 51K 0.50% 1/10W	
R745	1-216-064-00	METAL GLAZE 4.3K 5% 1/10W	
R746	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R747	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R748	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R749	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R750	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R751	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(MDP-515D)
R751	1-216-085-00	METAL GLAZE 33K 5% 1/10W	(MDP-315)
R752	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(MDP-315)
R752	1-216-748-11	METAL GLAZE 39K 5% 1/10W	(MDP-515D)
R753	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R754	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R757	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R758	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R759	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R760	1-216-121-00	METAL GLAZE 1M 5% 1/10W	(MDP-515D)
R761	1-216-121-00	METAL GLAZE 1M 5% 1/10W	(MDP-515D)
R762	1-216-121-00	METAL GLAZE 1M 5% 1/10W	(MDP-515D)
R763	1-216-089-00	METAL GLAZE 47K 5% 1/10W	(MDP-515D)
R764	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	(MDP-515D)
R765	1-216-121-00	METAL GLAZE 1M 5% 1/10W	(MDP-515D)
R766	1-216-121-00	METAL GLAZE 1M 5% 1/10W	(MDP-515D)
R767	1-216-121-00	METAL GLAZE 1M 5% 1/10W	(MDP-515D)
R769	1-216-077-00	METAL GLAZE 15K 5% 1/10W	(MDP-515D)
R770	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	(MDP-515D)
R771	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	(MDP-515D)
R772	1-216-121-00	METAL GLAZE 1M 5% 1/10W	(MDP-515D)
R773	1-216-121-00	METAL GLAZE 1M 5% 1/10W	(MDP-515D)

When indicating parts by reference number, please include the board name.

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-228-995-00	RES, ADJ, CARBON 22K	
RV702	1-228-995-00	RES, ADJ, CARBON 22K	
RV703	1-228-996-00	RES, ADJ, CARBON 47K (MDP-515D)	
RV704	1-228-996-00	RES, ADJ, CARBON 47K (MDP-515D)	

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*1-633-134-11 TL-40 BOARD (Ref.No 2,000 Series)
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RESISTOR

Ref.No	Part No.	Description			
R001	1-249-429-11	CARBON	10K	5%	1/4W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV001	1-228-994-00	RES, ADJ, CARBON 10K

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*A-6421-370-A RG-6 BOARD, COMPLETE (MDP-515D)
****
(Ref.No 2,000 Series)

CAPACITOR

Ref.No	Part No.	Description			Remark
C101	1-124-589-11	ELECT	47MF	20%	16V
C102	1-126-157-11	ELECT	10MF	20%	16V
C103	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C104	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C105	1-126-157-11	ELECT	10MF	20%	16V
C106	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C107	1-126-154-11	ELECT	47MF	20%	6.3V
C108	1-124-604-00	ELECT	330MF	20%	10V
C109	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C110	1-126-154-11	ELECT	47MF	20%	6.3V
C111	1-126-157-11	ELECT	10MF	20%	16V
C112	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C113	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C114	1-126-157-11	ELECT	10MF	20%	16V
C115	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C116	1-124-589-11	ELECT	47MF	20%	16V
C117	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C118	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C119	1-136-161-00	MYLAR	0.047MF	10%	50V
C120	1-136-161-00	MYLAR	0.047MF	10%	50V
C121	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C122	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C123	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C124	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C125	1-126-157-11	ELECT	10MF	20%	16V
C126	1-126-157-11	ELECT	10MF	20%	16V
C127	1-126-157-11	ELECT	10MF	20%	16V
C128	1-126-157-11	ELECT	10MF	20%	16V
C129	1-126-157-11	ELECT	10MF	20%	16V
C130	1-126-157-11	ELECT	10MF	20%	16V
C131	1-124-465-00	ELECT	0.47MF	20%	50V
C132	1-126-177-11	ELECT	100MF	20%	6.3V
C133	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C134	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C135	1-136-159-00	MYLAR	0.033MF	10%	50V
C136	1-124-438-00	ELECT	1MF	20%	50V
C137	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C138	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C139	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C140	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C141	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C142	1-124-472-11	ELECT	470MF	20%	6.3V
C143	1-126-177-11	ELECT	100MF	20%	6.3V
C144	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C145	1-163-103-00	CERAMIC CHIP	27PF	5%	50V

CONNECTOR

Ref.No	Part No.	Description
CN101	*1-566-709-11	CONNECTOR, BOARD TO BOARD 12P

TRIMMER

Ref.No	Part No.	Description
CV102	1-141-227-00	CAP, CERAMIC TRIMMER

DIODE

Ref.No	Part No.	Description
D101	8-719-911-19	DIODE 1SS119
D102	8-719-911-19	DIODE 1SS119
D103	8-719-911-19	DIODE 1SS119
D104	8-719-911-19	DIODE 1SS119

DELAY LINE

Ref.No	Part No.	Description
DL101	1-415-122-31	DELAY LINE, 1H (PAL)
DL102	1-415-640-11	DELAY LINE, LC

FILTER

Ref.No	Part No.	Description
FL101	1-235-753-21	YC MODULE
FL102	1-235-896-11	FILTER, BAND PASS

IC

Ref.No	Part No.	Description
IC101	8-752-006-12	IC CX20061
IC102	8-752-006-12	IC CX20061
IC103	8-752-030-75	IC V7020
IC104	8-759-011-65	IC MC74HC4053F
IC105	1-464-932-21	FILTER BLOCK, COM (CFB-3)

COIL

Ref.No	Part No.	Description	
L101	1-408-601-41	INDUCTOR	6.8UH
L103	1-408-609-41	INDUCTOR	33UH
L104	1-408-601-41	INDUCTOR	6.8UH
L105	1-408-609-41	INDUCTOR	33UH

VARIABLE COIL

Ref.No	Part No.	Description
LV101	1-415-651-11	COIL (DELAY ADJUSTMENT)

When indicating parts by reference number, please include the board name.

RG-6

TRANSISTOR

Ref.No	Part No.	Description		Remark
Q101	8-729-100-66	TRANSISTOR	2SC1623	
Q102	8-729-100-66	TRANSISTOR	2SC1623	
Q103	8-729-100-66	TRANSISTOR	2SC1623	
Q104	8-729-100-66	TRANSISTOR	2SC1623	
Q105	8-729-100-66	TRANSISTOR	2SC1623	
Q106	8-729-100-66	TRANSISTOR	2SC1623	
Q107	8-729-100-66	TRANSISTOR	2SC1623	
Q108	8-729-216-22	TRANSISTOR	2SA1162	
Q109	8-729-100-66	TRANSISTOR	2SC1623	
Q110	8-729-100-66	TRANSISTOR	2SC1623	
Q111	8-729-901-06	TRANSISTOR	DTA144EK	
Q112	8-729-901-01	TRANSISTOR	DTC144EK	
Q113	8-729-901-01	TRANSISTOR	DTC144EK	
Q114	8-729-100-66	TRANSISTOR	2SC1623	
Q115	8-729-216-22	TRANSISTOR	2SA1162	
Q116	8-729-100-66	TRANSISTOR	2SC1623	
Q117	8-729-100-66	TRANSISTOR	2SC1623	
Q118	8-729-216-22	TRANSISTOR	2SA1162	
Q119	8-729-100-66	TRANSISTOR	2SC1623	
Q120	8-729-100-66	TRANSISTOR	2SC1623	
Q121	8-729-216-22	TRANSISTOR	2SA1162	
Q122	8-729-100-66	TRANSISTOR	2SC1623	
Q123	8-729-901-01	TRANSISTOR	DTC144EK	

RESISTOR

Ref.No	Part No.	Description				Remark
R101	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R102	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R103	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R104	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R105	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R106	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R108	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R109	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R110	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R111	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R112	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R113	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R114	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R115	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R116	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R117	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R118	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R119	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R120	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R121	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R122	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R123	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R124	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R125	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R126	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R127	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R128	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R129	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R130	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R131	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R132	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R133	1-216-111-00	METAL GLAZE	390K	5%	1/10W	
R134	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R135	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R136	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R137	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R138	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R139	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R140	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R141	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R142	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R143	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R144	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R145	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R146	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R147	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R148	1-249-411-11	CARBON	330	5%	1/4W	
R149	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R150	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R151	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R152	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R153	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R154	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R155	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R156	1-249-411-11	CARBON	330	5%	1/4W	
R157	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R158	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R159	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R160	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R161	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R162	1-249-411-11	CARBON	330	5%	1/4W	
R163	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R164	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R165	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R166	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R167	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R168	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R169	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R170	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R171	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R172	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R173	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R174	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R175	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R176	1-216-049-00	METAL GLAZE	1k	5%	1/10W	
R177	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R178	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R179	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R180	1-212-863-00	FUSIBLE 18 5% 1/4W	F
		VARIABLE RESISTOR	
RV101	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV102	1-228-990-00	RES, ADJ, CARBON 1K	
RV103	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV104	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV105	1-228-991-00	RES, ADJ, CARBON 2.2K	
RV106	1-228-991-00	RES, ADJ, CARBON 2.2K	
RV107	1-228-994-00	RES, ADJ, CARBON 10K	
RV108	1-228-989-00	RES, ADJ, METAL GLAZE 470	
RV109	1-228-990-00	RES, ADJ, METAL GLAZE 1K	
RV110	1-230-504-11	RES, ADJ, CARBON 220	
RV111	1-230-504-11	RES, ADJ, CARBON 220	
		CRYSTAL	
X101	1-567-504-11	OSCILLATOR, CRYSTAL	
X102	1-567-505-11	OSCILLATOR, CRYSTAL	

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*A-6421-372-A PS-193 BOARD, COMPLETE (Ref.No 9,000 Series)
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	*1-533-189-11	HOLDER, FUSE	
	*3-309-144-21	HEAT SINK	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
		CAPACITOR	
C101	1-125-298-00	ELECT(BLOCK) 10000MF 20% 25V	
C102	1-124-314-00	ELECT 4700MF 20% 25V	
C103	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C104	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	
C105	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C106	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C107	1-124-471-00	ELECT 1000MF 20% 6.3V	
C108	1-124-499-11	ELECT 1MF 20% 50V	
C109	1-124-471-00	ELECT 1000MF 20% 6.3V	
C110	1-163-833-00	CERAMIC CHIP 0.068MF 25V	
C111	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	
C112	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C114	1-126-101-11	ELECT 100MF 20% 16V	
C115	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
C116	1-163-833-00	CERAMIC CHIP 0.068MF 25V	
C119	1-126-176-11	ELECT 220MF 20% 10V	
C120	1-126-096-11	ELECT 10MF 20% 25V	
C201	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C202	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C203	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C204	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C205	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C206	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	
C207	1-124-910-11	ELECT 47MF 20% 35V	
C208	1-163-035-00	CERAMIC CHIP 0.047MF 50V	

Ref.No	Part No.	Description	Remark
C209	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C210	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	
C211	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C212	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
		CONNECTOR	
CN002	*1-564-419-11	HEADER, SPRING (POWER) 2P	
CN003	*1-560-890-00	PIN, CONNECTOR 2P	
		DIODE	
D101	⚠.8-719-500-55	DIODE D3SBA10	
D105	8-719-908-06	DIODE ERA81-005	
D106	8-719-110-31	DIODE RD12ES-B2	
D108	8-719-105-82	DIODE RD5.1M-B2	
D110	8-719-175-88	DIODE RD7.5F-B	
D201	8-719-908-06	DIODE ERA81-005	
D202	8-719-908-06	DIODE ERA81-005	
D203	8-719-200-02	DIODE 10E2	
D204	8-719-200-02	DIODE 10E2	
D205	8-719-911-19	DIODE 1SS119	
D206	8-719-911-19	DIODE 1SS119	
D207	8-719-911-19	DIODE 1SS119	
		FUSE	
F101	⚠.1-532-299-00	FUSE, TIME-LAG	
F102	⚠.1-532-299-00	FUSE, TIME-LAG	
F301	⚠.1-532-078-00	FUSE, TIME-LAG	
		IC	
IC101	8-759-971-39	IC BA9700AF-T1	
IC102	8-759-604-47	IC M5F7905	
IC201	8-759-100-93	IC UPC339G2	
IC202	8-759-100-96	IC UPC4558G2	
		JUMPER RESISTOR	
JR001	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR005	1-216-295-00	METAL GLAZE 0 5% 1/10W	
		COIL	
L101	1-412-012-11	INDUCTOR 100UH	
L102	1-410-339-11	COIL, CHOKE 10UH	
L201	1-424-219-11	COIL, CHOKE 300UH	
		TRANSISTOR	
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q102	8-729-216-22	TRANSISTOR 2SA1162	
Q103	8-729-113-31	TRANSISTOR 2SB733-2	
Q105	8-729-159-64	TRANSISTOR 2SD596	
Q201	8-729-117-11	TRANSISTOR 2SB1151	
Q202	8-729-142-63	TRANSISTOR 2SD1691	
Q203	8-729-117-11	TRANSISTOR 2SB1151	
Q204	8-729-142-63	TRANSISTOR 2SD1691	
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE	

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

PS-193 TR-30

Ref.No	Part No.	Description				Remark
Q206	8-729-216-22	TRANSISTOR 2SA1162				
Q208	8-729-900-53	TRANSISTOR DTC114EK				
Q209	8-729-901-04	TRANSISTOR DTA114EK				
Q210	8-729-100-67	TRANSISTOR 2SC1623				
Q211	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q212	8-729-901-04	TRANSISTOR DTA114EK				

RESISTOR

Ref.No	Part No.	Description				Remark
R002	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R003	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R004	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R101	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R102	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R103	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R104	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R105	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R106	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R107	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R108	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R109	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	
R110	1-216-676-11	METAL CHIP	11K	0.50%	1/10W	
R112	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R114	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R115	1-216-446-00	METAL OXIDE	18	5%	2W	F
R116	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R117	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R120	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R201	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R202	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R203	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R204	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R205	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R206	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R207	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R208	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R209	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R210	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R211	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R212	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R213	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R214	1-247-750-11	CARBON	680	5%	1/2W	
R215	1-247-750-11	CARBON	680	5%	1/2W	
R216	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R217	1-216-369-00	METAL OXIDE	1	5%	2W	F
R218	1-216-690-11	METAL CHIP	43K	0.50%	1/10W	
R219	1-216-675-11	METAL CHIP	10K	0.50%	1/10W	
R220	1-216-690-11	METAL CHIP	43K	0.50%	1/10W	
R221	1-216-675-11	METAL CHIP	10K	0.50%	1/10W	
R222	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R223	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R224	1-215-866-11	METAL OXIDE	330	5%	1W	F
R225	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R226	1-247-750-11	CARBON	680	5%	1/2W	
R227	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R228	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R230	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R231	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

SWITCH

Ref.No	Part No.	Description
SW301 ⚠.	1-553-318-61	SWITCH, PUSH (AC POWER)(1 KEY)

LINE FILTER

Ref.No	Part No.	Description
T301 ⚠.	1-421-771-11	FILTER, LINE

****

*1-630-089-31 TR-30 BOARD (Ref.No 1,000 Series)
****

CAPACITOR

Ref.No	Part No.	Description			
C401 ⚠.	1-136-472-11	FILM	0.1MF	20%	250V
C416	1-124-122-11	ELECT	100MF	20%	50V
C417	1-124-910-11	ELECT	47MF	20%	50V
C418	1-124-122-11	ELECT	100MF	20%	35V
C419	1-124-122-11	ELECT	100MF	20%	50V
C420	1-163-033-00	CERAMIC CHIP	0.022MF		50V

CONNECTOR

Ref.No	Part No.	Description
CN401	1-506-483-21	PIN, CONNECTOR 4P
CN402	*1-564-028-00	PIN, CONNECTOR 3P
CN403	*1-564-028-00	PIN, CONNECTOR 3P

DIODE

Ref.No	Part No.	Description
D406 ⚠.	8-719-200-02	DIODE 10E2
D407	8-719-110-78	DIODE RD33ES-B2
D408	8-719-110-88	DIODE RD39ES-B2
D409	8-719-110-17	DIODE RD10ES-B2

TRANSISTOR

Ref.No	Part No.	Description
Q404	8-729-113-33	TRANSISTOR 2SB733-4

RESISTOR

Ref.No	Part No.	Description				Remark
R416 ⚠.	1-249-401-11	CARBON	47	5%	1/4W	F
R417	1-249-416-11	CARBON	820	5%	1/4W	
R418	1-249-405-11	CARBON	100	5%	1/4W	

****

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
	*A-6421-368-A	FP-197 BOARD, COMPLETE (MDP-315) ************************	(Ref.No 7,000 Series)
	*A-6421-374-A	FP-222 BOARD, COMPLETE (MDP-515D) ************************	(Ref.No 8,000 Series)
	*3-735-049-11	HOLDER, FL TUBE	
		CAPACITOR	
C001	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V	
C002	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C003	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C004	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C005	1-126-157-11	ELECT 10MF 20% 16V	
C006	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C007	1-126-157-11	ELECT 10MF 20% 16V	
C008	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C009	1-126-157-11	ELECT 10MF 20% 16V	
C010	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C011	1-124-242-00	ELECT 33MF 20% 16V	
C012	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C013	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
		CONNECTOR	
CN001	1-506-483-21	PIN, CONNECTOR 4P	
CN002	*1-564-019-11	PIN, CONNECTOR 9P	
CN003	1-506-485-11	PIN, CONNECTOR 6P	(MDP-315)
CN003	1-506-486-11	PIN, CONNECTOR 7P	(MDP-515D)
CN004	1-506-484-11	PIN, CONNECTOR 5P	(MDP-315)
CN004	1-506-486-11	PIN, CONNECTOR 7P	(MDP-515D)
		IC	
IC001	8-752-810-78	IC CXP5058H-647Q	
IC002	8-752-810-77	IC CXP5048H-201Q	
IC003	8-759-605-21	IC M51953AFP	
IC004	8-741-138-78	IC BX-1453	
IC005	8-759-926-64	IC SN74HC367NS	
		COIL	
L001	1-407-169-XX	INDUCTOR 100UH	
L002	1-407-169-XX	INDUCTOR 100UH	
		INDICATOR TUBE	
ND001	1-519-511-11	INDICATOR TUBE, FLUORESCENT	
		TRANSISTOR	
Q001	8-729-100-66	TRANSISTOR 2SC1623	
Q002	8-729-100-66	TRANSISTOR 2SC1623	
		RESISTOR	
R001	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R002	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R003	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R004	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R005	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R006	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R007	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R008	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R009	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R010	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R011	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R012	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R013	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R014	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R015	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R016	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R017	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R018	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R019	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R020	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R021	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R022	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R023	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R024	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R025	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R026	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R027	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R028	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R029	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R030	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	(MDP-515D)
R031	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	(MDP-515D)
		SWITCH	
S001	1-553-856-00	SWITCH, KEY BOARD (1A)	
S002	1-553-856-00	SWITCH, KEY BOARD (2B)	
S003	1-553-856-00	SWITCH, KEY BOARD (3C)	
S004	1-553-856-00	SWITCH, KEY BOARD (6F)	
S005	1-553-856-00	SWITCH, KEY BOARD (9)	
S006	1-553-856-00	SWITCH, KEY BOARD (4D)	
S007	1-553-856-00	SWITCH, KEY BOARD (5E)	
S008	1-553-856-00	SWITCH, KEY BOARD (8)	
S009	1-553-856-00	SWITCH, KEY BOARD (7)	
S010	1-553-856-00	SWITCH, KEY BOARD (+10)	
S011	1-553-856-00	SWITCH, KEY BOARD (FILE)	
S012	1-553-856-00	SWITCH, KEY BOARD (INDEX)	
S013	1-553-856-00	SWITCH, KEY BOARD (AV TIME)	
S014	1-553-856-00	SWITCH, KEY BOARD (CDV)	
S015	1-553-856-00	SWITCH, KEY BOARD (0)	
S016	1-571-758-11	SWITCH, PUSH (1 KEY) (SIDE REPEAT)	
S017	1-553-856-00	SWITCH, KEY BOARD (1/ALL)	(MDP-515D)
S018	1-553-856-00	SWITCH, KEY BOARD (⏮)	(MDP-515D)
S019	1-553-856-00	SWITCH, KEY BOARD (⏭)	(MDP-515D)
S020	1-570-157-21	SWITCH, SLIDE (RGB)	(MDP-515D)
		CRYSTAL	
X001	1-567-160-21	OSCILLATOR, CERAMIC (4.19MHz)	

When indicating parts by reference number, please include the board name.

FP-223 FP-198 HP-50 LS-17 SW-106

Ref.No	Part No.	Description	Remark
	*A-6421-375-A	FP-223 BOARD, COMPLETE (MDP-515D) ************************	
	*1-630-099-11	FP-198 BOARD (MDP-315) *************	
	3-737-426-01	REFLECTOR	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN001	1-506-486-11	PIN, CONNECTOR 7P	

DIODE

Ref.No	Part No.	Description	Remark
D001	8-719-301-56	DIODE SEL2813A-D (PAL)	(MDP-515D)
D002	8-719-301-46	DIODE SEL2413E (NTSC)	(MDP-515D)

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q001	8-729-900-80	TRANSISTOR DTC114ES	(MDP-515D)
Q002	8-729-900-61	TRANSISTOR DTA114ES	(MDP-515D)

RESISTOR

Ref.No	Part No.	Description				Remark
R001	1-249-422-11	CARBON	2.7K	5%	1/4W	(MDP-315)
R001	1-249-427-11	CARBON	6.8K	5%	1/4W	(MDP-515D)
R002	1-247-814-11	CARBON	200	5%	1/4W	(MDP-515D)
R002	1-249-424-11	CARBON	3.9K	5%	1/4W	(MDP-315)
R003	1-247-814-11	CARBON	200	5%	1/4W	(MDP-515D)
R003	1-249-427-11	CARBON	6.8K	5%	1/4W	(MDP-315)
R004	1-249-432-11	CARBON	18K	5%	1/4W	
R005	1-249-422-11	CARBON	2.7K	5%	1/4W	
R006	1-249-424-11	CARBON	3.9K	5%	1/4W	
R007	1-249-427-11	CARBON	6.8K	5%	1/4W	
R008	1-249-430-11	CARBON	12K	5%	1/4W	
R009	1-249-432-11	CARBON	18K	5%	1/4W	

SWITCH

Ref.No	Part No.	Description	Remark
S001	1-553-856-00	SWITCH, KEY BOARD (▮◀◀)	(MDP-315)
S002	1-553-856-00	SWITCH, KEY BOARD (▶▶▮)	(MDP-315)
S003	1-554-592-21	SWITCH, KEY BOARD (DUAL SPEED ◀◀)	
S004	1-553-856-00	SWITCH, KEY BOARD (OPEN/CLOSE)	
S005	1-553-856-00	SWITCH, KEY BOARD (▷)	
S006	1-553-856-00	SWITCH, KEY BOARD (▮▮/▶▮◀)	
S007	1-553-856-00	SWITCH, KEY BOARD (■)	
S008	1-554-592-21	SWITCH, KEY BOARD (DUAL SPEED ▶▶)	
S009	1-570-157-21	SWITCH, SLIDE (STOP MODE)	

****

Ref.No	Part No.	Description	Remark
	*1-630-090-11	HP-50 BOARD (Ref.No 5,000 Series) ************	
	3-735-057-01	HOLDER, HP	

CAPACITOR

Ref.No	Part No.	Description			
C101	1-124-478-11	ELECT	100MF	20%	25V
C102	1-124-478-11	ELECT	100MF	20%	25V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN101	1-506-471-11	PIN, CONNECTOR 6P	

JACK

Ref.No	Part No.	Description	Remark
CNJ101	1-507-796-71	JACK	

IC

Ref.No	Part No.	Description	Remark
IC101	8-759-701-45	IC NJM4560S-D	

RESISTOR

Ref.No	Part No.	Description				Remark
R101	1-249-417-11	CARBON	1K	5%	1/4W	
R102	1-249-425-11	CARBON	4.7K	5%	1/4W	
R103	1-249-430-11	CARBON	12K	5%	1/4W	
R104	1-249-405-11	CARBON	100	5%	1/4W	
R105	1-249-417-11	CARBON	1K	5%	1/4W	
R106	1-249-425-11	CARBON	4.7K	5%	1/4W	
R107	1-249-430-11	CARBON	12K	5%	1/4W	
R108	1-249-405-11	CARBON	100	5%	1/4W	
R109	1-249-409-11	CARBON	220	5%	1/4W	
R110	1-249-409-11	CARBON	220	5%	1/4W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV101	1-238-581-11	RES, VAR	

****

Ref.No	Part No.	Description	Remark
	*1-630-091-11	LS-17 BOARD (Ref.No 3,000 Series) ************	
	3-735-054-01	HOLDER, SENSOR	

DIODE

Ref.No	Part No.	Description	Remark
D201	8-719-941-81	DIODE GL360	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q201	8-729-904-10	PT360FS	

****

Ref.No	Part No.	Description	Remark
	*1-630-092-11	SW-106 BOARD (Ref.No 3,000 Series) *************	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN301	1-506-467-11	PIN, CONNECTOR 2P	

SWITCH

Ref.No	Part No.	Description	Remark
S301	1-554-655-00	SWITCH, LEAF	

****

When indicating parts by reference number, please include the board name.

SW-107 | CK-14 | FG-13 | MT-28 | MT-29 | MT-30

Ref.No	Part No.	Description	Remark
	*1-630-093-11	SW-107 BOARD (Ref.No 3,000 Series)	
		CONNECTOR	
CN401	1-506-481-11	PIN, CONNECTOR 2P	
		RESISTOR	
R401	1-249-423-11	CARBON 3.3K 5% 1/4W	
R402	1-249-417-11	CARBON 1K 5% 1/4W	
		SWITCH	
S401	1-571-300-11	SWITCH, ROTARY	

****

Ref.No	Part No.	Description	Remark
	*1-630-094-11	CK-14 BOARD (Ref.No 4,000 Series)	
		CAPACITOR	
C001	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C002	1-163-038-00	CERAMIC CHIP 0.1MF	25V
		CONNECTOR	
CN001	*1-564-001-41	PIN, CONNECTOR 2P	
CN002	1-506-468-11	PIN, CONNECTOR 3P	
CN003	1-506-467-11	PIN, CONNECTOR 2P	
CN004	*1-564-001-21	PIN, CONNECTOR 2P	
CN005	*1-564-001-31	PIN, CONNECTOR 2P	
		JUMPER RESISTOR	
JR001	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR002	1-216-296-00	METAL GLAZE 0 5% 1/8W	
		RESISTOR	
R001	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R002	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R003	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R004	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R005	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R006	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R007	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	

****

Ref.No	Part No.	Description	Remark
	*1-630-096-11	FG-13 BOARD (Ref.No 4,000 Series)	
		DIODE	
D301	8-719-939-11	GP2S09-B	

****

Ref.No	Part No.	Description	Remark
	*1-630-097-11	MT-28 BOARD	

****

Ref.No	Part No.	Description	Remark
	*1-630-101-11	MT-29 BOARD	

****

Ref.No	Part No.	Description	Remark
	*1-631-095-11	MT-30 BOARD	

****

MISCELLANEOUS

Ref.No	Part No.	Description	Remark
	⚠.1-551-908-61	CORD, POWER, EULO PLUG	
	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
	*1-574-755-11	WIRE, FLAT TYPE 28P	
M901	1-541-665-11	MOTOR, SPINDLE	
M902	1-541-659-11	MOTOR, DC (SLED)	
M903	1-541-659-11	MOTOR, DC (TILT)	
M904	1-541-309-11	MOTOR, DC (RF-370C) (LOADING)	
S901	1-571-435-11	SWITCH (SLED IN LIMIT)	
S902	1-570-771-21	SWITCH (SLED OUT LIMIT)	
S903	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD)	
T401	⚠.1-449-849-11	TRANSFORMER, POWER	

****

ACCESSORIES AND PACKING MATERIALS

Part No.	Description	Remark
1-465-161-31	REMOTE COMMANDER (RMT-515D)	
*3-710-964-01	SHEET, PROTECTION	
*3-735-072-01	CUSHION (UPPER)	
*3-735-073-01	CUSHION (LOWER)	
*3-737-442-31	INDIVIDUAL CARTON	
3-750-763-41	MANUAL, INSTRUCTION (MDP-315) (ENGLISH)	
3-750-763-51	MANUAL, INSTRUCTION (MDP-315) (FRENCH/GERMAN/SPANISH)	
3-750-763-61	MANUAL, INSTRUCTION (MDP-315) (DUTCH/SWEDISH/ITALIAN)	
3-750-764-41	MANUAL, INSTRUCTION (MDP-515D) (ENGLISH)	
3-750-764-51	MANUAL, INSTRUCTION (MDP-515D) (AEP MODEL) (FRENCH/GERMAN/SPANISH)	
3-750-764-61	MANUAL, INSTRUCTION (MDP-515D) (AEP MODEL) (DUTCH/SWEDISH/ITALIAN)	
1-559-533-11	CORD, CONNECTION (AUS MODEL) (2PHONO to 2PHONO AUDIO)	
1-551-086-31	CORD, CONNECTION (AUS MODEL) (1PHONO to 1PHONO VIDEO)	

****

When indicating parts by reference number, please include the board name.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remark
		HARDWARE LIST *************	
		WASHER	
	7-623-423-07	LW 4, TYPE B	
		STOP RING	
	7-624-108-04	STOP RING 4.0, TYPE -E	
		SCREW	
	7-621-255-55	SCREW +P 2X8	
	7-682-545-04	SCREW (3X4) (G), TAPPING, (+) P	
	7-682-645-01	SCREW +PS 3X4	
	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
	7-685-649-79	SCREW +BVTP 3X14 TYPE2 IT-3	
	7-685-661-79	SCREW +BVTP 4X12 TYPE2 SLIT	
	7-685-870-01	SCREW +BVTT 3X5 (S)	

****

SECTION 7
ELECTRICAL ADJUSTMENTS

During these adjustment, see the parts arrangement diagram relevant to the adjustment on page from 146.

1-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Audio level meter
- Frequency counter
- Remote commander (RMT-515D)
- LD alignment disc { REF3P (8-597-903-01) ····PAL
REF7 (8-597-901-03) ····NTSC
- CD alignment disc YEDS-18 (3-702-101-01)
- MD adjustment cable (J-6082-059-A)

1-2. CAUTIONS ON ADJUSTMENT

- Disc load/unload operation must not be performed when servicing with the unit laying down sideways. (Never press the OPEN and CLOSE buttons.)
- When laying the unit down sideways, perform adjustment with the left side down and turn the power on.
- When adjusting the servo system, be sure to set up the unit horizontally.

1-3. MD ADJUSTMENT CABLE (J-6082-059-A)

MD adjustment cable is used to adjust the servo system with connecting to the SV-33 board. Remove it except when adjusting the servo system.

MD adjustment cable

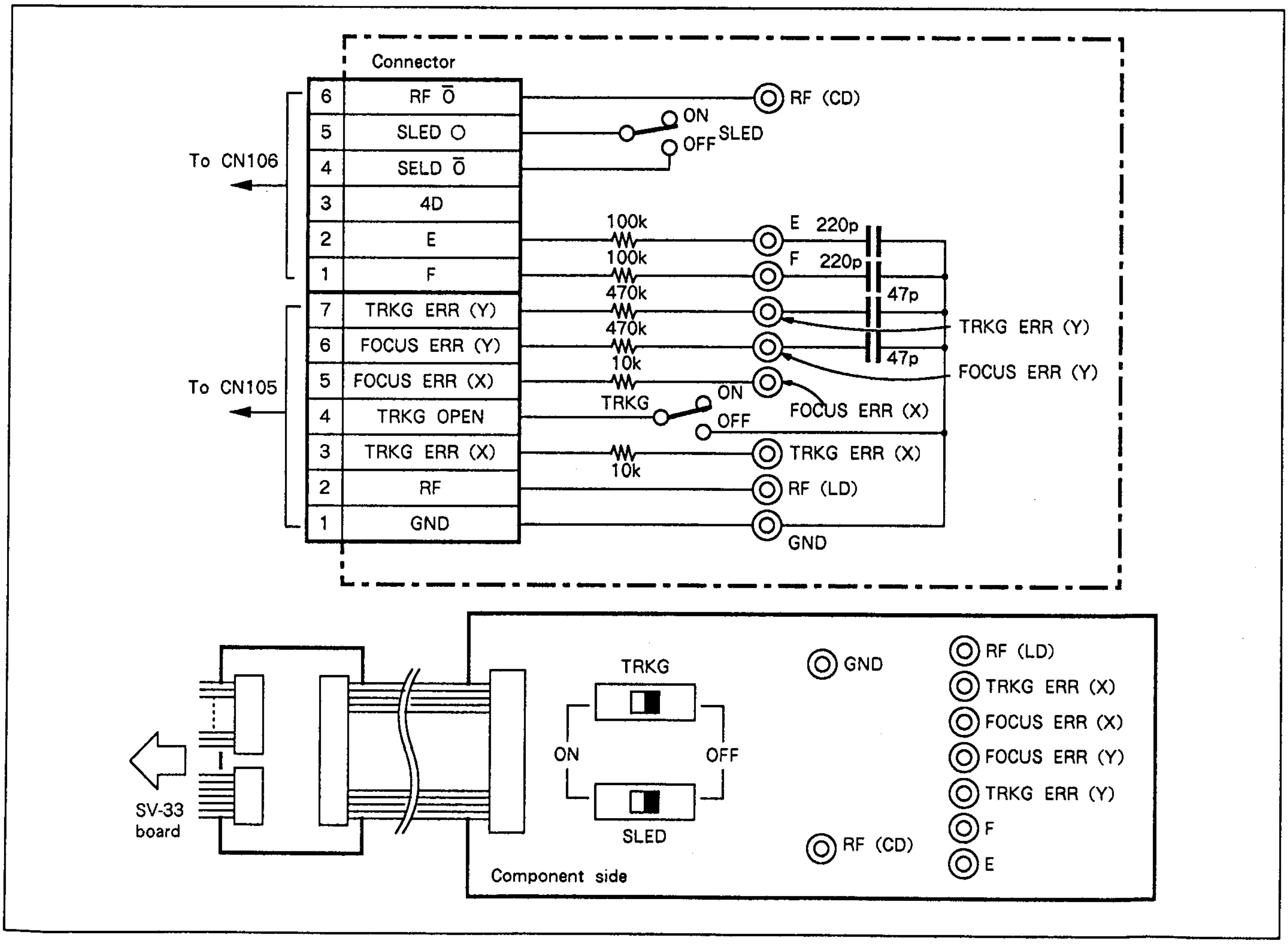

Connector
To CN106
6 RF Ō
5 SLED O
4 SELD Ō
3 4D
2 E
1 F
To CN105
7 TRKG ERR (Y)
6 FOCUS ERR (Y)
5 FOCUS ERR (X)
4 TRKG OPEN
3 TRKG ERR (X)
2 RF
1 GND
RF (CD)
ON
OFF
SLED
100k
100k
470k
470k
10k
10k
E 220p
F 220p
47p
47p
TRKG ERR (Y)
FOCUS ERR (Y)
TRKG
ON
OFF
FOCUS ERR (X)
TRKG ERR (X)
RF (LD)
GND
SV-33 board
TRKG
ON
OFF
SLED
Component side
GND
RF (CD)
RF (LD)
TRKG ERR (X)
FOCUS ERR (X)
FOCUS ERR (Y)
TRKG ERR (Y)
F
E

Fig. 7-1.

1-4. POWER SUPPLY CHECK (PS-193 BOARD)

Mode	Stop
Measuring Equipment	Digital voltmeter
UN REG +16V check	
Measurement Point	Pin ① of W002 (Pin ②, GND)
Specified Value	14.5±1V
UN REG −16V check	
Measurement Point	Pin ③ of W002 (Pin ②, GND)
Specified Value	−14.5±1V
REG +5V check	
Measurement Point	Pin ⑥ of W002 (Pin ⑤, GND)
Specified Value	5.1±0.2V
REG −5V check	
Measurement Point	Pin ⑦ of W002 (Pin ⑤, GND)
Specified Value	−5±0.5V

- Confirm that the power supply voltages satisfy the respective specified values.

1-5. SYSTEM CONTROL SYSTEM ADJUSTMENT

1-5-1. Microprocessor Clock (PAL) Adjustment (MP-15 Board)

Mode	Stop
Measurement Point	Pin ① of IC608
Measuring Equipment	Frequency counter
Adjusting Element	CV 601
Specified Value	4,433,619 ±10Hz

Adjustment method:
1) Adjust with CV601 to 4,433,619±10Hz.

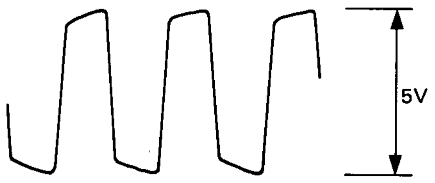


Fig. 7-2.

1-5-2. Microprocessor Clock (NTSC) Adjustment (MP-15 Board)

Mode	Stop
Measurement Point	Pin (79) of IC 613
Measuring Equipment	Frequency counter
Adjusting Element	CV 602
Specified Value	3,579,545±10Hz

Adjustment method :
1) Adjust with CV602 to 3,579,545±10Hz.

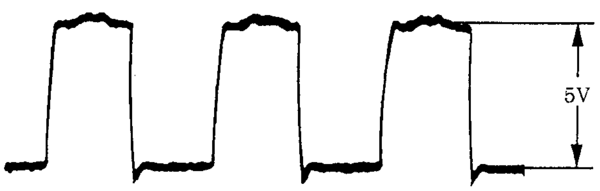


Fig. 7-3.

1-6. SERVO SYSTEM ADJUSTMENT

When adjusting the servo system, look out for the following items :

- Use the MD adjustment cable (J-6082-059-A).
- Adjust the CD servo system after the digital audio system adjustment is completed.
- When setting the tracking servo to the open state, set to the STOP state once and proceed to the next step.
- When the optical block is replaced, perform the adjustment in the following order.

Note : Start adjustment at maximum CD RF H level (RV108 fully counterclockwise direction).

1. LD Tracking Balance Adjustment
   1) Focus balance adjustment
   2) Tracking balance adjustment
2. LD Focus Gain Adjustment
3. LD Cross Talk Balance Adjustment
   1) TAN cam adjustment
   2) RAD-TILT adjustment
   3) Focus balance adjustment
4. LD Tracking Gain Adjustment
5. RD Adjustment
6. CD Focus Balance Adjustment
7. CD RF H Level Adjustment
8. CD RF L Level Adjustment

1-6-1. LD Servo System Adjustment

1. LD Tracking Balance Adjustment (SV-33 Board)

1) Focus balance adjustment

Note : Perform successively 1) and 2) adjustment in this order.

Mode	Still
Signal	Frame 2201 (GRAY) (REF3P)
Measurement Point	MD adjustment.cable [TRKG ERR (X)] (Pin ③ of CN105)
Measuring Equipment	Oscilloscope
Adjusting Element	RV102
Specified Value	Maximum amplitude

Adjustment method :

1) Select STILL (⧓) mode.
2) Search the frame 2201 (GRAY).
3) Turn the thread servo off. (MD adjustment cable SLED SW OFF)
4) Turn the tracking servo off. (MD adjustment cable TRKG SW OFF)
5) Adjust with RV102 so as to maximize the signal level.

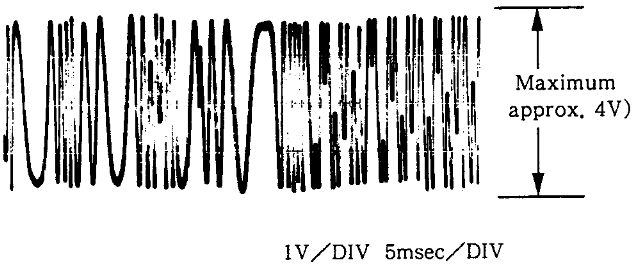


Fig. 7-4.

2) Tracking balance adjustment

Mode	Still
Signal	Frame 2201 (GRAY) (REF3P)
Measurement Point	MD adjustment cable [TRKG ERR (X)] (Pin ③ of CN105)
Measuring Equipment	Oscilloscope
Adjusting Element	RV101
Specified Value	A−B=0±0.1V

Adjustment method :

Note : Perform successively this adjustment after "1) Focus balance adjustment" is completed.

6) Adjust with RV101 so that the center voltage of the tracking error signal becomes 0±0.1Vdc.
7) Select STOP (■) mode.
8) Turn the tracking servo on.
9) Turn the thread servo on.

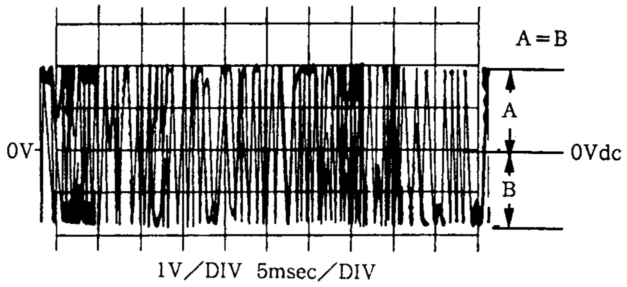
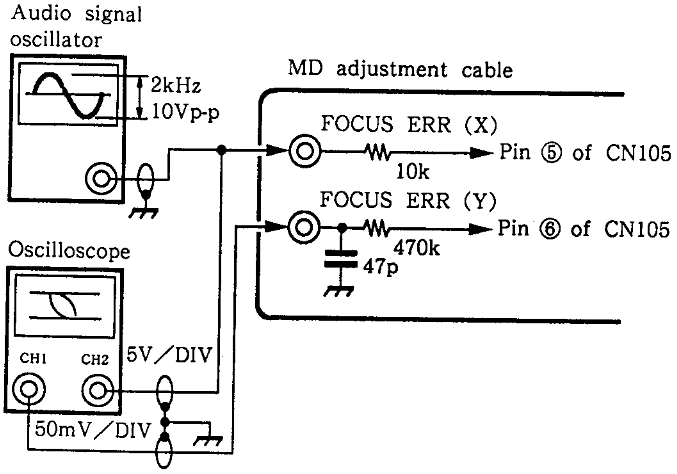


Fig. 7-5.

2. LD Focus Gain Adjustment (SV-33 Board)

Mode	Playback
Signal	Frame 2201 (GRAY) (REF3P)
Measurement Point	MD adjustment cable CH1 : [FOCUS ERR (Y)] (Pin ⑥ of CN105) CH2 : [FOCUS ERR (X)] (Pin ⑤ of CN105)
Measuring Equipment	Oscilloscope (X-Y mode)
Adjusting Element	RV107
Specified Value	See figure below

Connections :


Audio signal oscillator
2kHz
10Vp-p
MD adjustment cable
FOCUS ERR (X)
Pin ⑤ of CN105
10k
FOCUS ERR (Y)
Pin ⑥ of CN105
470k
47p
Oscilloscope
CH1
CH2
5V/DIV
50mV/DIV

Adjustment method :

1) Search the frame 2201.
2) Adjust the waveform as shown in the figure below with RV107.

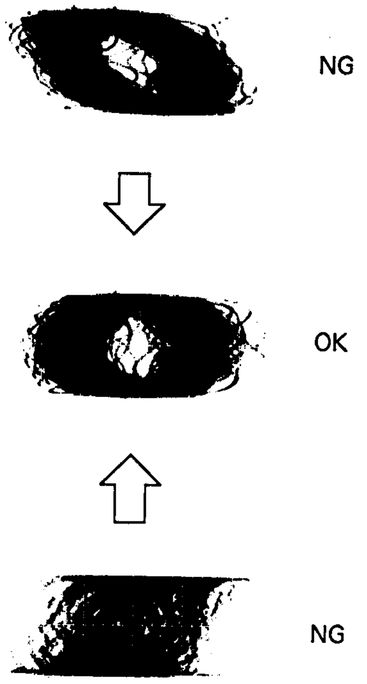


Fig. 7-6.

3. LD Cross Talk Balance Adjustment

1) TAN cam adjustment (MD)

The cam is always set to the initial position. When replacing the optical block and so on, set the cam to the mechanical center.*

*Mechanical center :

Marked with the notch of the cam located at the opposite side of the optical block chassis shaft.

Adjustment method :

1) Turn the TAN cam on the bottom (See Fig. 1-11.) with a hexagonal wrench.

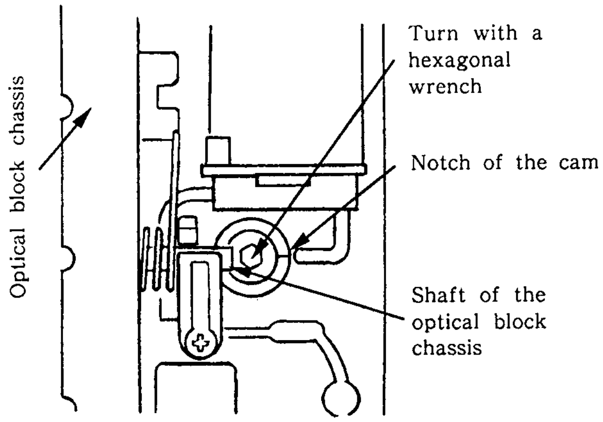

Optical block chassis
Turn with a hexagonal wrench
Notch of the cam
Shaft of the optical block chassis

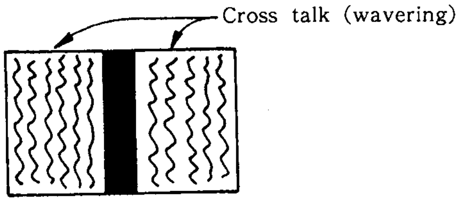
Fig. 7-7.

2) RAD TILT adjustment (SV-33 board)

Mode	Still
Signal	Frame 767 (V BAR) (REF3P)
Measurement Point	Monitor TV
Measuring Equipment	Monitor TV
Adjusting Element	RV105
Specified Value	Cross talk (wavering) with minimum as well as the same level.

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 767 and apply a vertical bar signal.
3) Adjust with RV105 so that the rigth and left cross talks (wavering) become minimum as well as the level.



Adjust so that cross talks appeared on the both sides on the monitor display become minimum as well as the same level.

Fig. 7-8.

3) Focus balance adjustment (SV-33 board)

Mode	Still
Signal	Frame 767 (V BAR) (REF3P)
Measurement Point	Monitor TV
Measuring Equipment	Monitor TV
Adjusting Element	RV102
Specified Value	Cross talk (wavering) with minimum as well as the same level.

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 767 and apply a vertical bar signal.
3) Adjust with RV102 to minimize the right and left cross talks (wavering) level.

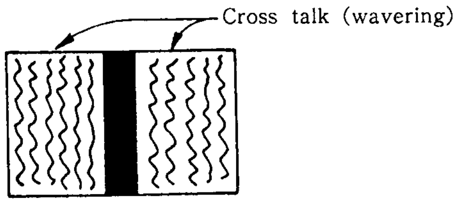
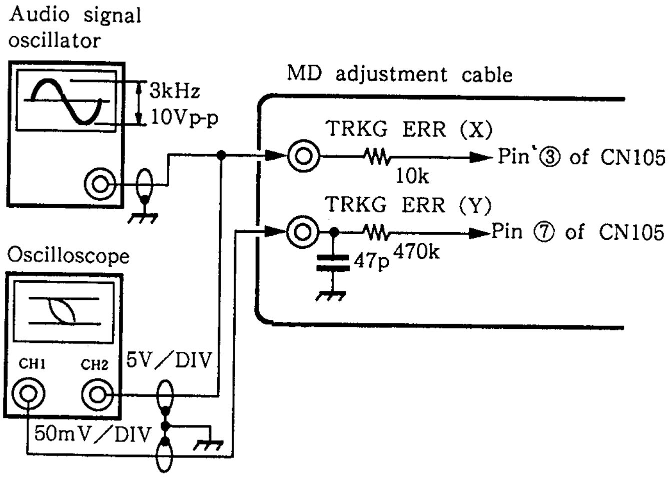


Fig. 7-9.

4. LD Tracking Gain Adjustment (SV-33 Board)

Mode	Still
Signal	Frame 2201 (GRAY) (REF3P)
Measurement Point	MD adjustment cable CH1 : [TRKG (Y)] (Pin ⑦ of CN105) CH2 : [TRKG (X)] (Pin ③ of CN105)
Measuring Equipment	Oscilloscope (X-Y mode)
Adjusting Element	RV106 (TR GAIN)
Specified Value	See figure below

Connections :


Audio signal oscillator
3kHz
10Vp-p
MD adjustment cable
TRKG ERR (X)
10k
Pin ③ of CN105
TRKG ERR (Y)
Pin ⑦ of CN105
47p
470k
Oscilloscope
CH1
CH2
5V/DIV
50mV/DIV

Adjustment method :

1) Search the frame 2201.
2) Adjust the waveform as shown in the figure below with RV106.

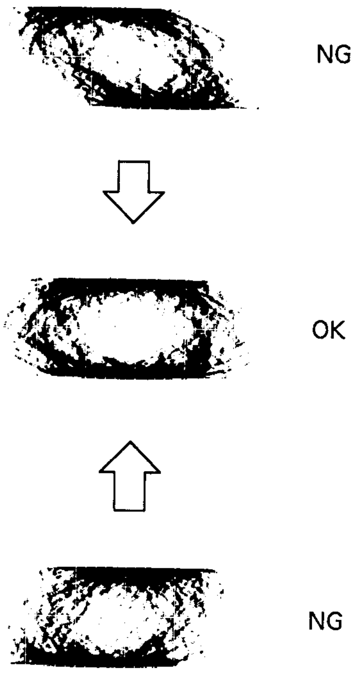


Fig. 7-10.

1-6-2. CD Servo System Adjustment

1. RD Adjustment

Mode	Pause
Signal	Track No. 1, YEDS-18
Measurement Point	MD adjustment cable CH1 : [E terminal] CH2 : [F terminal]
Measuring Equipment	Oscilloscope
Adjusting Element	RD Cam (MD)
Specified Value	A : B≦10 : 1

Note : 1) Turn off the monitor TV switch to prevent a noise.

Note : 2) Long continuation of the TRKG servo off state causes the spindle motor to stop.

Adjustment method :

1) Play back the track No. 1 and select PAUSE mode.
2) Turn the thread servo off. (MD adjustment cable SLED SW OFF)
3) Turn the tracking servo off. (MD adjustment cable TRKG SW OFF)
4) Turn RD cam on the MD and adjust so that it becomes as a straight line as possible.

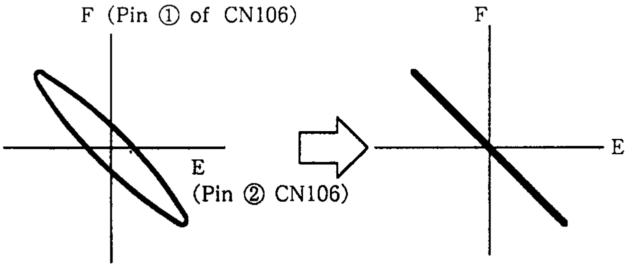


Fig. 7-11.

SV-33 board (CONDUCTOR SIDE)

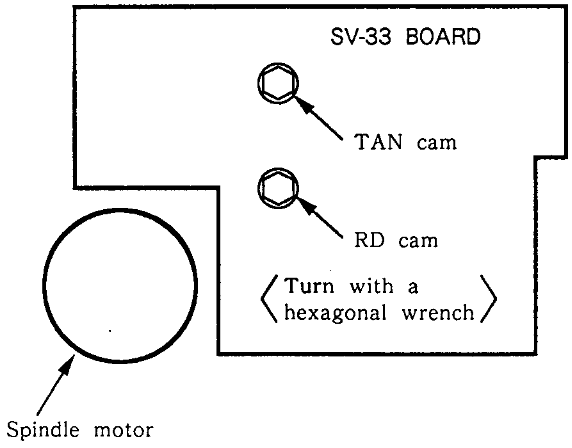


Fig. 7-12.

2. CD Focus Balance Adjustment (SV-33 Board)

Mode	Playback
Signal	Track No. 1, YEDS-18
Measurement Point	MD adjustment cable [RF (CD) OUT] (Pin ⑥ of CN106)
Measuring Equipment	Oscilloscope
Adjusting Element	RV103
Specified Value	Maximum amplitude

Adjustment method :

1) Play back the track No. 1.
2) Adjust with RV103 for maximum level.

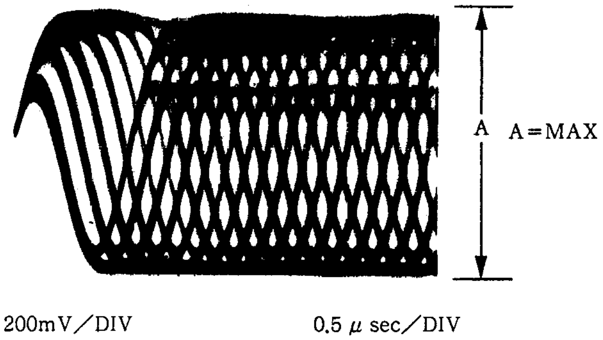


Fig. 7-13.

3. CD RF H Level Adjustment (SV-33 Board)

Mode	Playback
Signal	Track No. 1, YEDS-18
Measurement Point	MD adjustment cable [RF (CD) OUT] (Pin ⑥ of CN106)
Measuring Equipment	Oscilloscope
Adjusting Element	RV108
Specified Value	1.2±0.1Vp-p

Adjustment method :
1) Play back the track No. 1.
2) Adjust with RV108 to 1.2±0.1Vp-p.

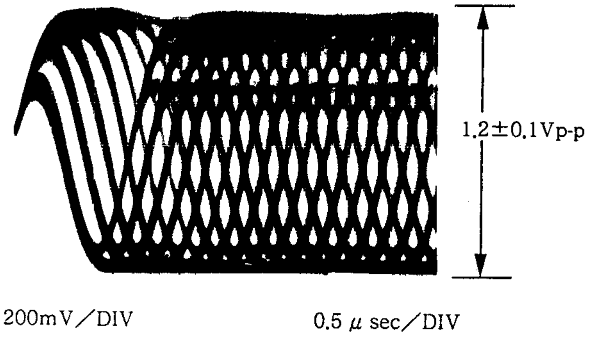
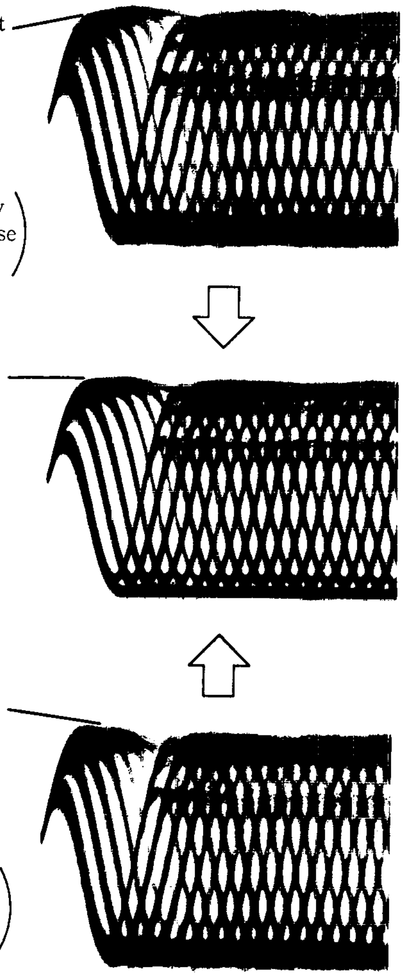


Fig. 7-14.

4. CD RF L Level Adjustment (SV-33 Board)

Mode	Playback
Signal	Track No. 1, YEDS-18
Measurement Point	MD adjustment cable [RF (CD) OUT] (Pin ⑥ of CN106)
Measuring Equipment	Oscilloscope
Adjusting Element	RV104
Specified Value	Clear-cut waveform

Adjustment method :
1) Play back the track No. 1.
2) Adjust with RV104 so that the waveform of lozenge-shaped portions becomes clear-cut and the waveform slant disappear from the rising edge portion.



- Waveform slant at the rising edge.
- Waveform of lozenge-shaped portions are not clear.

(RV104 : Excessively rotated in clockwise direction (↻).)

OK
200mV/DIV
0.5msec/DIV

- Waveform slant at the rising edge.
- Waveform of lozenge-shaped portions are not clear.

(RV104 : Excessively rotated in counterclockwise direction (↺).)

Fig. 7-15.

1-7. VIDEO SYSTEM ADJUSTMENT

1-7-1. Video Output Level Adjustment (MP-15 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement Point	CNJ102 (VIDEO OUT terminal) (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV104
Specified Value	1.05 ±0.05Vp-p

Adjustment method:

1) Select STILL (▶◀) mode.
2) Search the frame 3851 and apply a color bar signal.
3) Turn RV104 to fully counterclockwise direction.
4) Adjust with RV104 to 1.05±0.05Vp-p on the first adjusting point at turning clockwise direction.

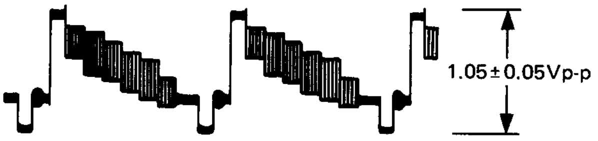


Fig. 7-16.

1-7-2. Burst Gate Position Adjustment (MP-15 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement Point	Pin ㉓ of IC111
Adjusting Element	RV107
Specified Value	8.5±0.2 μsec.

Adjustment method:

1) Select STILL (▶◀) mode.
2) Search the frame 3851.
3) Adjust RV107 so that tw becomes 8.5±0.2 μsec.

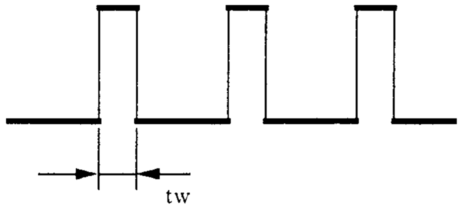


Fig. 7-17.

1-7-3. REF H Adjustment (MP-15 and TL-40 Boards)

Note: Perform [Adjustment 1] and [Adjustment 2] in this order.

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement Point	CH1:Pin ㉑ of IC111 External trigger:Pin ㉕ of IC111
Measurement Equipment	Oscilloscope
Adjusting Elements	[Adj.1] RV1 (TL-40 board) [Adj.2] RV105 (MP-15 boad)
Specified Value	[Adj.1] 85± 1 μsec [Adj.2] 22± 1 μsec

Connection:

- Appy 5.0Vdc to Pin ㊵ of IC111.

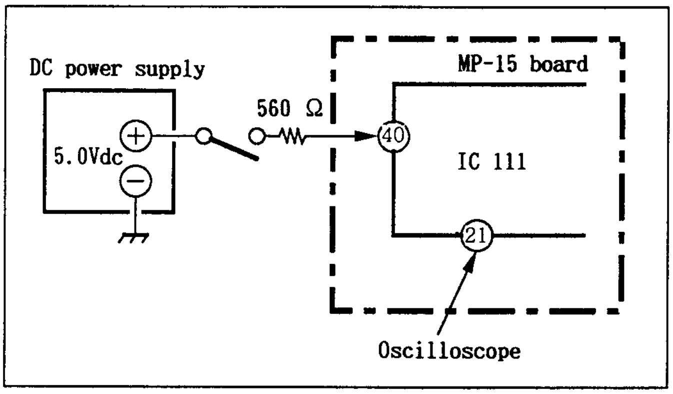


Fig. 7-18.

Adjustment method :

[Adjustment 1]

1) Select STILL (▶◀) mode.
2) Search the frame 3851.
3) Connect the DC Power supply (5.0Vdc) to pin ㊵ of IC111.
4) Adjust with RV1 so that rising time difference between the pulse when the power (5.0Vdc) is on (LIM ON) and the trigger pulse (Pin ㉕ of IC111) is 85 ± 1 μsec.

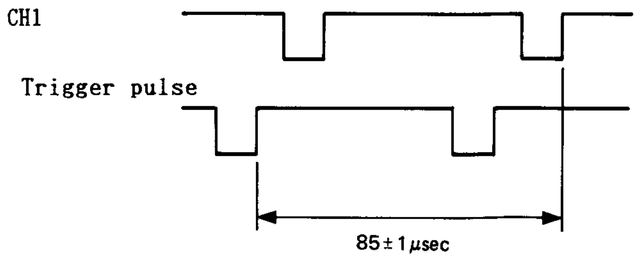


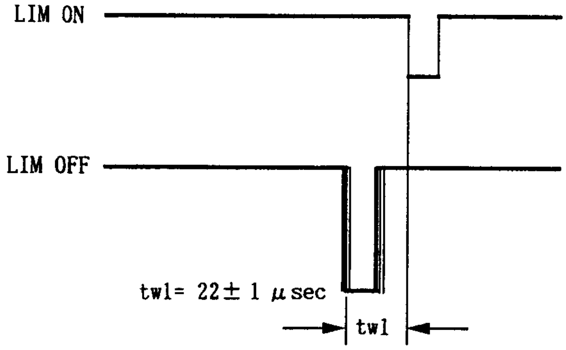
Fig. 7-19.

[Adjustment 2]

1) Select STILL (▶◀) mode.
2) Search the frame 3851.
3) Connect the DC Power supply (5.0Vdc) to pin ㊵ of IC111.
4) Adjust with RV105 so that time difference between when the power (5.0Vdc) is on (LIM ON) and when the power off (LIM OFF) is 22± 1 μsec.

Note : Since the waveform of LIM OFF is wavering, adjust at fits center position.

- Pin ㉑ of IC111 (CH1)



- Pin 25 of IC111 (Trigger pulse)

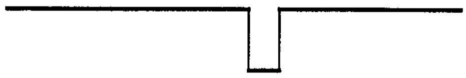


Fig. 7-20.

1-7-4. Color Framing Y Level Adjustment (MP-15 Board)

Mode	Play back and Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	CNJ102 (VIDEO OUT terminal) (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV102
Specified Value	A=B

Adjustment method :

1) Search the frame 3851.
2) Equalize with RV102 Y levels on the playback mode and the still mode.

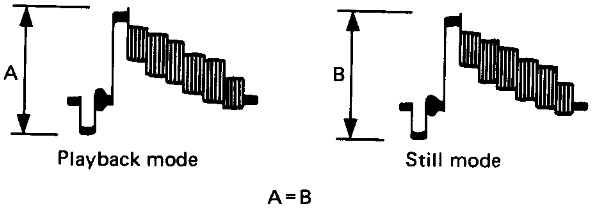


Fig. 7-21.

1-7-5. Color Framing Chroma Level (1) Adjustment (MP-15 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	CNJ102 (VIDEO OUT terminal) (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV103
Specified Value	minimum

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 3851.
3) Minimize with RV103 the shaking of green position.

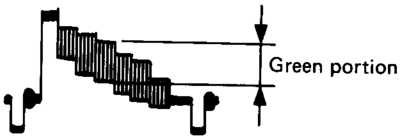


Fig. 7-22.

1-7-6. Color Framing Chroma Level (2) Adjustment (MP-15 Board)

Mode	Play back and Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	CNJ102 (VIDEO OUT terminal) (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV101
Specified Value	A=B

Adjustment method :

1) Search the frame 3851.
2) Equalize with RV101 the green levels on the playback mode and the still mode.

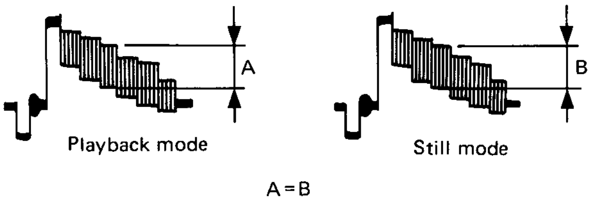


Fig. 7-23.

1-7-7. Color Framing REF H Adjustment (MP-15 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	PIN ④ of IC108
Measuring Equipment	Oscilloscope
Adjusting Element	RV106
Specified Value	tw= 112±5msec

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 3851.
3) Adjust with RV106 so that tw is 112±5msec.

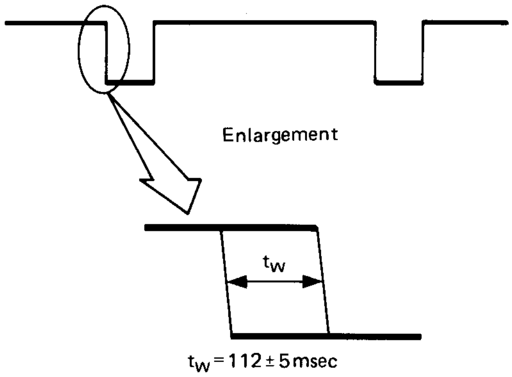


Fig. 7-24.

1-7-8. Input Level (PAL) Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	PIN ㉔ of IC103
Measuring Equipment	Oscilloscope
Adjusting Element	RV101
Specified Value	150±10mVp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 3851 .
3) Adjust with RV101 to 150±10mVp-p.

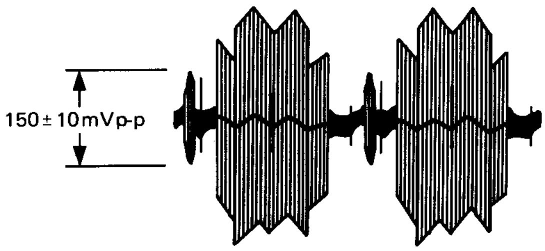


Fig. 7-25.

1-7-9. Input Level (NTSC) Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	PIN ㉔ of IC103
Measuring Equipment	Oscilloscope
Adjusting Element	RV103
Specified Value	150±10mVp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 4100.
3) Adjust with RV103 to 150±10mVp-p.

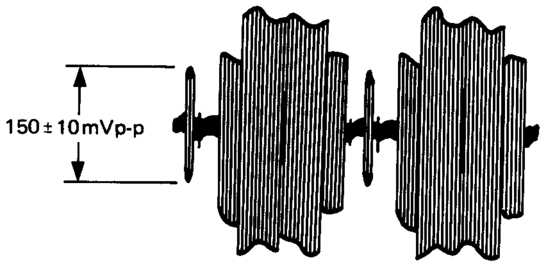


Fig. 7-26.

1-7-10. BF Position Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	CH1:Pin ㉗ of IC 103 CH2:Pin ③ of IC103
Measuring Equipment	Oscilloscope
Adjusting Element	RV107
Specified Value	5.6±0.5 µsec

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 4100.
3) Adjust with RV107 to 5.6±0.5 µsec.

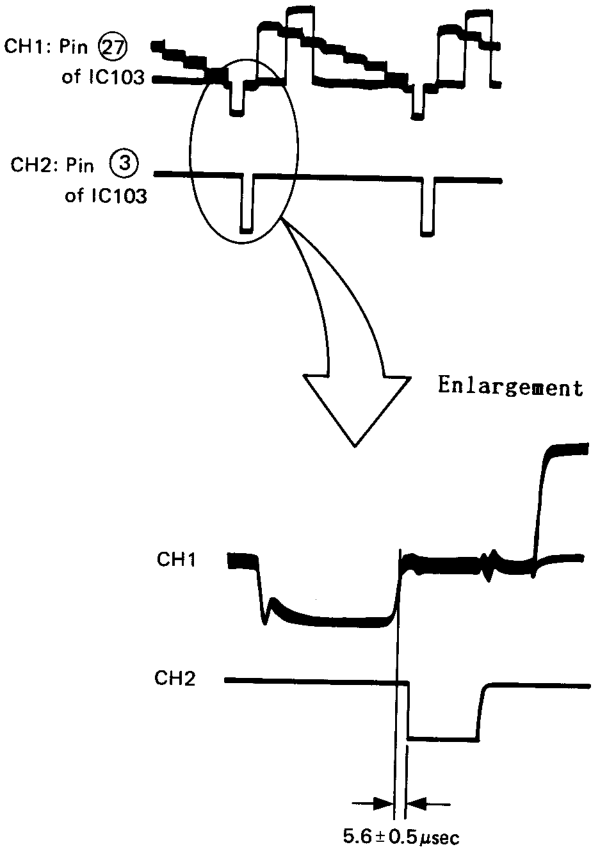

CH1: Pin ㉗ of IC103
CH2: Pin ③ of IC103
Enlargement
CH1
CH2
5.6±0.5µsec

Fig. 7-27.

1-7-11. Video Level (NTSC) Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	CH1:Pin ⑤ of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV104
Specified Value	0.7±0.05Vp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 4100.
3) Adjust with RV104 to 0.7±0.05Vp-p.

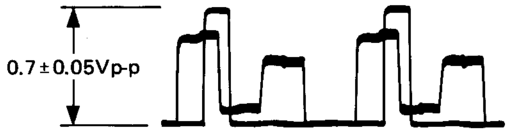


Fig. 7-28.

1-7-12. G Level Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin⑥of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV111
Specified Value	0.7±0.05Vp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 4100.
3) Adjust with RV111 to 0.7±0.05Vp-p.

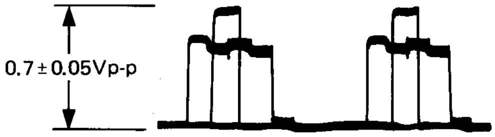


Fig. 7-29.

1-7-13. B Level Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin⑦of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV110
Specified Value	0.7±0.05Vp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 4100.
3) Adjust with RV110 to 0.7±0.05Vp-p.

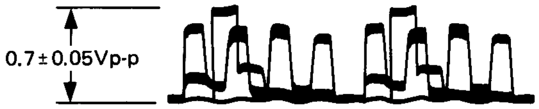


Fig. 7-30.

1-7-14. Video Level (PAL) Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	Pin⑤of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV102
Specified Value	0.7±0.05Vp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 3851.
3) Adjust with RV102 to 0.7±0.05Vp-p.

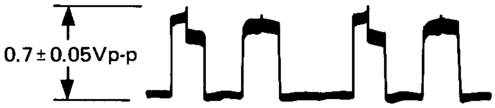


Fig. 7-31.

1-7-15. Free-Run Frequency (PAL) Adjustment (RG-6 Board)

Mode	Playback
Signal	Any Signal (REF3P)
Measurement point	Pin ⑭ of IC 103
Measuring Equipment	Frequency Counter
Adjusting Element	RV108
Specified Value	4,433,619±15Hz

Adjustment method :

1) Playback the REF3P disc.
2) Adjust with RV108 to 4,433,619±15Hz.

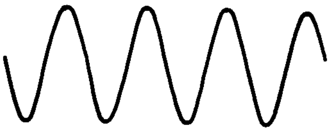


Fig. 7-32.

1-7-16. Free-Run Frequency (NTSC) Adjustment (RG-6 Board)

Mode	Playback
Signal	Any Signal (REF7)
Measurement point	Pin ⑭ of IC 103
Measuring Equipment	Frequency Counter
Adjusting Element	CV102
Specified Value	3,579,545±15Hz

Adjustment method :

1) Playback the REF7 disc.
2) Adjust with CV102 to 3,579,545±15Hz.

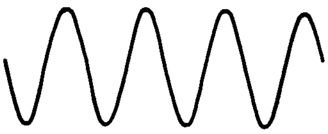


Fig. 7-33.

1-7-17. Chroma Level Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin⑦of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV105
Specified Value	0.53 ±0.03Vp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 4100.
3) Adjust with RV105 to 0.53±0.03Vp-p.

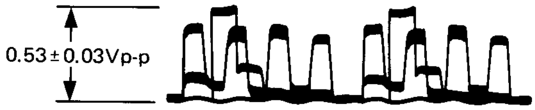


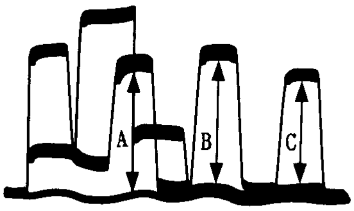
Fig. 7-34.

1-7-18. HUE Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin⑦of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV109
Specified Value	A=B=C= 0.53±0.03Vp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 4100.
3) Adjust with RV109 to 0.53±0.03Vp-p.



A=B=C=0.53±0.03Vp-p

Fig. 7-35.

1-7-19. DL Amplifier Gain Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	Pin⑤of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV106
Specified Value	A=B= 0.53±0.03Vp-p

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 3851.
3) Adjust with RV106 to 0.53±0.03Vp-p.

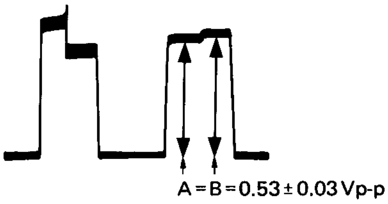


Fig. 7-36.

1-7-20. DAT Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	Pin⑦of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	LV101
Specified Value	A− B ≦30mV

Adjustment method :

1) Select STILL (▶◀) mode.
2) Search the frame 3851.
3) Adjust with LV101 to A− B ≦30mV.

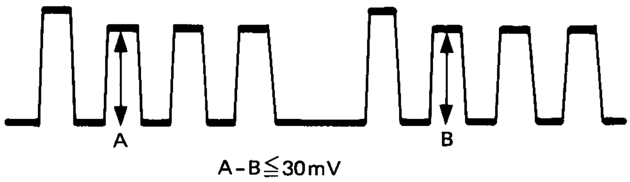


Fig. 7-37.

1-8. AUDIO SYSTEM ADJUSTMENT

1-8-1. Analog Audio System Adjustment (AF-52 Board)

1. Audio output level adjustment (MDP-515)

Note: Adjusting element of the 2/R channel is indicated in brackets [ ] .

Mode	Still
Signal	Frame 4301 (RAMP/1kHz) (REF3P) Frame 4301 (RAMP/1kHz) (REF7)
Measurement point	Audio output 1/L [2/R] terminal
Measuring Equipment	Audio level meter or Oscilloscope
Adjusting Element	RV701 [RV702] (NTSC) RV703 [RV704] (PAL)
Specified Value	Audio level meter:500±25mVrms Osilloscope : 1.4±0.07Vp-p

Adjustment method :

1) Playback the REF7 disc.
2) Search the Frame 4301 (chapter 6)
3) Turn off the $\boxed{\text{CX}}$ with remote commander.
   (Confirm that the indication on the front panel of the main unit is disappeared.)
4) Adjust with RV701 [RV702] to 500±25mVrms or 1.4±0.07Vp-p.
5) Playback the REF3P disc.
6) Search the Frame 4301 (chapter 6)
7) Turn off the $\boxed{\text{CX}}$ with remote commander.
   (Confirm that the indication on the front panel of the main unit is disappeared.)
8) Adjust with RV703 [RV702] to 500±25mVrms or 1.4±0.07Vp-p.

2. Audio output level adjustment (MDP-315)

Note: Adjusting element of the 2/R channel is indicated in brackets [ ] .

Mode	Playback
Signal	Frame 4301 (RAMP/1kHz) (REF3P)
Measurement point	Audio output 1/L [2/R] terminal
Measuring Equipment	Audio level meter or Oscilloscope
Adjusting Element	RV701 [RV702]
Specified Value	Audio level meter:500±25mVrm Osilloscope : 1.4±0.07Vp-p

Adjustment method :

1) Playback the REF3P disc.
2) Search the Frame 4301 (chapter 6)
3) Turn off the $\boxed{\text{CX}}$ with remote commander.
   (Confirm that the indication on the front panel of the main unit is disappeared.)
4) Adjust with RV701 [RV702] to 500±25mVrms or 1.4 ±0.07Vp-p

1-8-2. Digital Audio System Adjustment (MP-15 Board)

Mode	Stop
Measurement point	Pin①of IC803
Measuring Equipment	Digital Voltmeter
Adjusting Element	RV801
Specified Value	0±0.2Vdc

Connections:

Connect the chemical capacitor(1μF or more) in between Pin⑤of IC803(EFM) and GND.

Adjustment method :

1) Adjust with RV801 so that the voltage at Pin①of IC803 is 0±0.2Vdc.

1-8-3. RF PLL Free-Run Adjustment (MP-15 Board)

Mode	Stop
Measurement point	Pin ⑦⓪ of IC803
Measuring Equipment	Frequency counter
Adjusting Element	LV801
Specified Value	4.405±0.005MHz

Connections:
Connect the chemical capacitor (1μF or more) in between Pin⑤ (EFM) of IC803 and GND.

Adjustment method :
1) Adjust with LV001 to 4.405 ±0.005MHz.

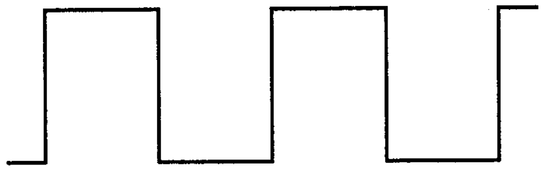
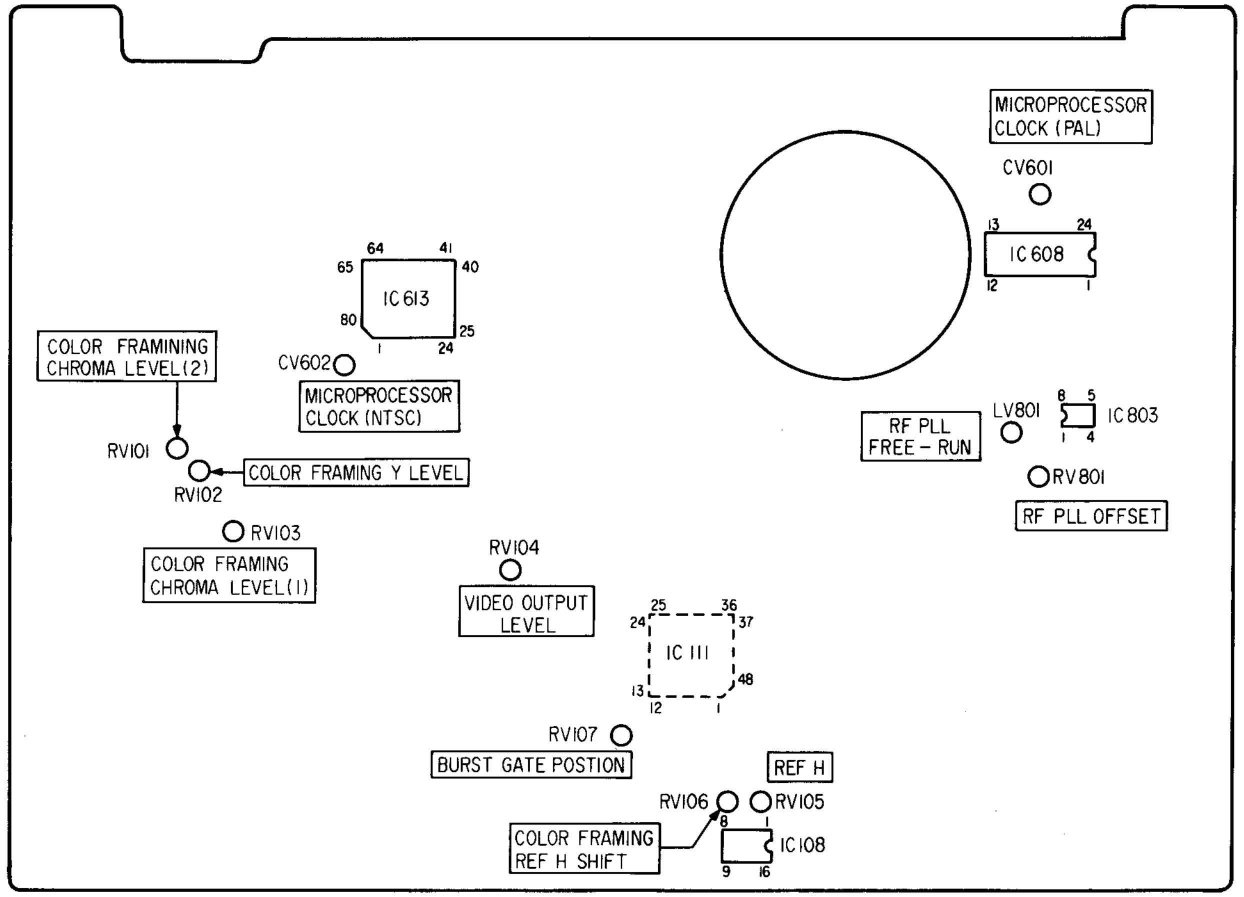


Fig. 7-38.

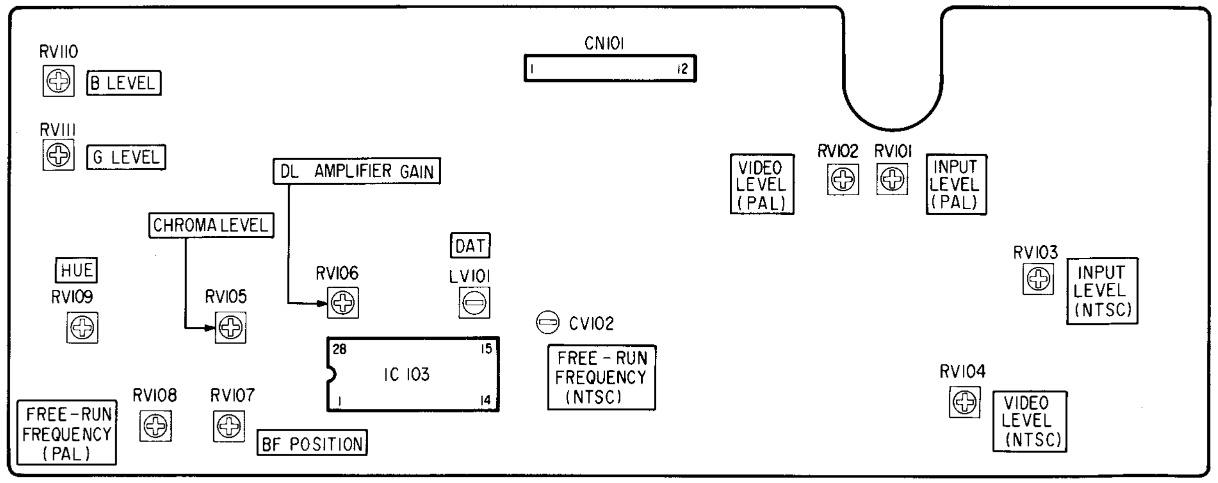
Note: If adjusting with a metallic screwdriver, a reading value may be altered. So use a ceramic screwdriver.

ADJUSTMENT RELATED PARTS LOCATION

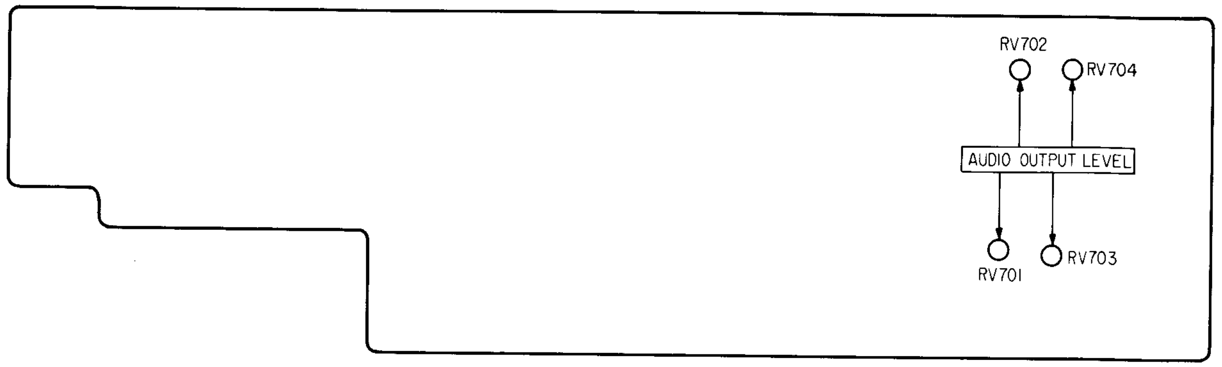
MP-15 BOARD (CONDUCTOR SIDE)


MICROPROCESSOR CLOCK (PAL)
CV601
IC608
13
24
12
1
64
41
65
40
IC613
80
25
1
24
COLOR FRAMINING CHROMA LEVEL(2)
CV602
MICROPROCESSOR CLOCK (NTSC)
RV101
RV102
COLOR FRAMING Y LEVEL
RV103
COLOR FRAMING CHROMA LEVEL(1)
RV104
VIDEO OUTPUT LEVEL
25
36
24
37
IC 111
13
48
12
1
RF PLL FREE-RUN
LV801
8
5
IC803
1
4
RV801
RF PLL OFFSET
RV107
BURST GATE POSTION
REF H
RV106
RV105
COLOR FRAMING REF H SHIFT
8
1
IC108
9
16

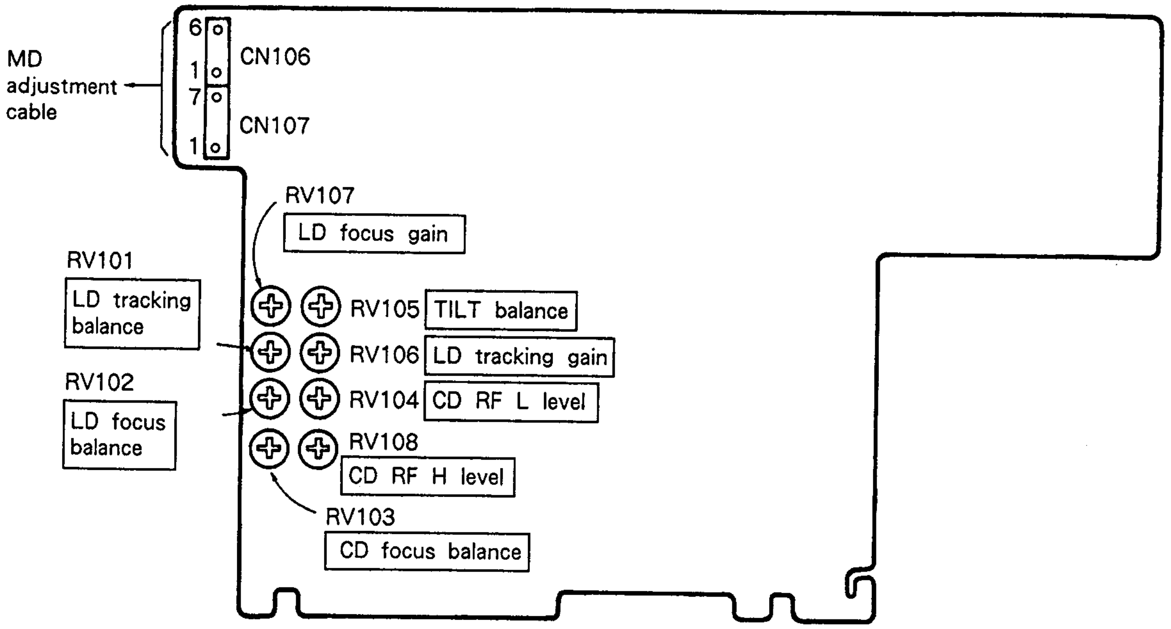
RG-6 BOARD (COMPONENT SIDE)


RV110
B LEVEL
RV111
G LEVEL
CN101
1
12
DL AMPLIFIER GAIN
CHROMA LEVEL
HUE
RV109
RV105
RV106
DAT
LV101
CV102
28
15
IC 103
1
14
FREE-RUN FREQUENCY (NTSC)
FREE-RUN FREQUENCY (PAL)
RV108
RV107
BF POSITION
VIDEO LEVEL (PAL)
RV102
RV101
INPUT LEVEL (PAL)
RV103
INPUT LEVEL (NTSC)
RV104
VIDEO LEVEL (NTSC)

AF-52 BOARD (CONDUCTOR SIDE)


RV702
RV704
AUDIO OUTPUT LEVEL
RV701
RV703

SV-33 board (CONDUCTOR SIDE)


MD adjustment cable
6
1
7
1
CN106
CN107
RV107
LD focus gain
RV101
LD tracking balance
RV102
LD focus balance
RV105
TILT balance
RV106
LD tracking gain
RV104
CD RF L level
RV108
CD RF H level
RV103
CD focus balance

PS-193 board (CONDUCTOR SIDE)